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BOTANICAL SERIES VOL. VII, No. 4

THE RUBIACEAE OF VENEZUELA

BY

PAUL C. STANDLEY
ASSOCIATE CURATOR OF THE HERBARIUM, DEPARTMENT OF BOTANY

B. E. DAHLGREN
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THE RUBIACEAE OF VENEZUELA

PAUL C. STANDLEY

Venezuela, with almost 600,000 square miles of territory, is substantially larger than the neighboring republic of Colombia, consequently, upon the basis of area alone, other conditions being equal, one would expect to find more Rubiaceae in Venezuela than in Colombia. The present list enumerates 81 genera and 351 species, a number which, it is scarcely necessary to state, is far short of the total actually existing in the country under consideration.

Venezuela is more than twice as large as Texas. Because of the difficulties of travel in the greater part of the country, only a relatively small portion of it ever has been seen by a botanist and many parts still are quite unexplored. Indeed, even the boundaries are yet a matter of uncertainty, and on that account it is possible that there are listed on the following pages some species that have not been collected yet within the proper limits of Venezuela.

Except for certain small regions such as those about Caracas and Tovar, no part of Venezuela is well known botanically, in spite of the fact that so many specimens of plants have been gathered in the country. Most of the collections have been obtained in the more densely settled portions, the chief exceptions being those from Mount Roraima and Mount Duida, and from the Orinoco and its tributaries. The Orinoco region must hold scores of Rubiaceae unknown to science or recorded hitherto only from Brazil. Even in the northern states, where most of the collecting has been done, new species of Rubiaceae are discovered by almost every collector.

Venezuela is fortunate in having been visited by many able botanical collectors who have been charmed but almost discouraged by the luxuriant variety of its vegetation. The first important plant collection made in the republic was the classical one of Humboldt and Bonpland, from the Orinoco and the environs of Caracas. From their specimens Kunth described many endemic Venezuelan Rubiaceae.

A curious confusion arose regarding the publication of the Humboldt and Bonpland species of Rubiaceae. Specimens of some of them, especially the Psychotrias, were submitted to Willdenow, and brief descriptions of them were included by Roemer and Schultes in the part of their *Systema* which appeared in 1819. The same

species, or most of them, at least, were described by Kunth in a part of the *Nova Genera* that appeared the following year. Kunth, however, makes no mention of the Willdenow names. In some cases the same name is applied in both works to the same plant, but frequently the specific names are different in the two works. Even more confusing is the fact that a certain specific name sometimes is applied by Roemer and Schultes to one plant, and the same name by Kunth to a quite different one.

It is unnecessary to enumerate here all the collectors who have contributed to the present knowledge of Venezuelan Rubiaceae, for their work has been described by Pittier in his *Plantas Usuales de Venezuela*. Many species of Rubiaceae still are known only from the types obtained along the Orinoco and Río Negro by Richard Spruce, foremost and most fortunate of the botanists who have worked in the Amazon Valley.

Knowledge of the Rubiaceae, as well as of the whole flora of Venezuela, has been vastly increased during the past twenty years by the labors of a botanist who already had accomplished enough to represent an enviable life work for one man. Henry Pittier, chiefly by his own field work, but also by his stimulation of the efforts of others, has added to the flora of Venezuela many hundreds of species, chiefly new ones, but also many that were known previously only from Colombia or the Guianas. Only his personal friends will realize under what difficult conditions his enthusiasm has impelled him to carry on floristic work in a region where it was so much needed.

The best and only important work relating to the Venezuelan flora is his *Plantas Usuales de Venezuela*, published at Caracas in 1926. Like his already classic work of similar form upon the plants of Costa Rica, it is an encyclopedia of information regarding the area covered.

With no intention of drawing comparisons, it is necessary to mention here a publication quite different in scientific value, Knuth's *Initia Florae Venezuelensis* (1926–28). Certainly the plan of publishing a plant list of any South American country is a praiseworthy one, and, when properly executed, deserves the most diligent support; but it is imperative to give a word of caution to prospective students of the Venezuelan flora regarding this work, although they soon will discover its defects themselves.

In Knuth's list the writer has investigated only the Rubiaceae, but presumably other families are treated in the same manner. The

fact that some collections are listed under wrong specific determinations is not remarkable, and in the case of the Rubiaceae of Knuth's work the present writer undoubtedly is responsible for some of the errors perpetrated. There is less excuse, however, for the omission of dozens of species reported from Venezuela in the *Flora Brasiliensis*. No student of the tropical American flora will go far unless he consults frequently the volumes of that unique work, one of the few whose cost in dollars is proportionate to its practical scientific value.

Still less excusable is the fact that in Knuth's enumeration of Venezuelan plants the same species often is entered two to four times under as many specific or generic names! Under certain circumstances such carelessness might be understood or excused, but in most of the instances in mind, the errors might have been remedied by consultation of the *Flora Brasiliensis*, or of the no less accessible publications by Urban upon the flora of the West Indies.

From a geographic standpoint the Venezuelan Rubiaceae are associable mostly with several rather well-marked provinces. Those of the Andes are chiefly species that occur in the higher mountains of Colombia. Those of the northern plains and lower mountains either are endemic or extend into the Guianas and the West Indies. Along the Orinoco and Río Negro there is a host of species, especially in *Psychotria*, which range to Amazonian Brazil, or else find their closest relatives there.

Two Venezuelan localities possess peculiar and endemic floras—Mount Roraima and Mount Duida, both in the southern part of the country. Mount Roraima usually is associated with British Guiana, perhaps because most explorers have approached it from that direction, but the Venezuelan boundary crosses its summit. On that account, naturally, all the species recorded from the mountain deserve a place in any enumeration of Venezuelan plants. As is well known, Roraima's flora, at least that of the upper slopes, consists almost wholly of endemic species.

It is only recently that Mount Duida, which lies well to the west of Roraima, has been ascended and explored, by G. H. H. Tate of the American Museum of Natural History. The Rubiaceae of Mr. Tate's collection were submitted to the writer for determination by the New York Botanical Garden. It is planned to publish a complete report upon his whole collection, but, through the courtesy of Dr. H. A. Gleason, it is possible to enumerate here the Rubiaceae collected by Mr. Tate, which form a substantial addition to the list.

One might well expect to find upon Mount Duida some, at least, of the Roraima Rubiaceae, but that, surprisingly enough, is not the case. Although the Duida plants are related to Roraima species, they are clearly distinct. Especially noteworthy are two new genera, *Gleasonia* and *Duidania*, described on later pages of this report.

As in the case of the preceding parts of the present volume, in the preparation of this Venezuelan list the writer has been fortunate in being able to study at Field Museum a large amount of material lent by American and European herbaria. The institutions whose collections have been examined wholly or in part are the following: Field Museum of Natural History (indicated in the lists of specimens cited by the letter F); Royal Botanic Gardens, Kew (K); Botanic Garden and Museum, Berlin-Dahlem (B); Riksmuseets Botaniska Afdelning, Stockholm (S); Jardin Botanique Principal, Leningrad (L); Muséum d'Histoire Naturelle, Paris (P); United States National Museum, Washington (W); Gray Herbarium of Harvard University (G); New York Botanical Garden (Y); Missouri Botanical Garden (M). To those in charge of these collections, who have lent material for study, the writer here expresses his sincere and grateful appreciation of the courtesies thus extended.

The writer wishes to express also his personal appreciation of the courtesy of Dr. K. Krause, who so generously forwarded the undetermined South American Rubiaceae of the Berlin-Dahlem herbarium for use in the preparation of this and other papers. Too much credit can not be given to the value in this work of the splendid series of photographs of type specimens procured by J. Francis Macbride at Berlin-Dahlem, through the cooperation with Field Museum of the Rockefeller Foundation and Dr. Ludwig Diels, Director of the Museum and Garden of Berlin-Dahlem.

While most of the sendings from the institutions enumerated above contained interesting Venezuelan material, special mention must be made of that received from Paris. Students who are interested in Venezuelan plants are recommended to consult the herbarium of the Museum of Natural History, for in the Rubiaceae, at least, its Venezuelan collections probably are unequaled elsewhere in Europe. The largest collection of Venezuelan plants existing in America, if not in the world, is that of the United States National Museum, which, among American herbaria, is deficient only in its lack of the historic collections made by August Fendler.

KEY TO THE TRIBES AND GENERA[1]

Ovules 3 or more in each cell of the ovary.

Fruit dry.

Flowers arranged in very dense, globose heads. Plants armed with spines.....I. *Naucleeae.*

Flowers not in dense globose heads.

Corolla more or less bilabiate, the lobes imbricate. Stamens unequal, inserted high in the corolla tube; ovules 2 or 4 in each cell.....III. *Henriquezieae.*

Corolla regular or, if somewhat irregular, the ovules more than 4 in each cell.

Seeds winged, vertically imbricate.....II. *Cinchoneae.*

Seeds not winged or, if winged, horizontal.

Corolla lobes imbricate or contorted, never valvate. V. *Rondeletieae.*

Corolla lobes valvate.

Seeds horizontal; stipules entire or bifid; plants trees or large shrubs.....IV. *Condamineae.*

Seeds peltately attached; stipules often fimbriate; plants commonly herbs or low shrubs. VI. *Hedyotideae.*

Fruit fleshy.

Corolla lobes valvate.....VII. *Mussaendeae.*

Corolla lobes imbricate or contorted.

Seeds many, minute, pitted or rarely tuberculate. VIII. *Hamelieae.*

Seeds usually few and large, the testa smooth or fibrous. IX. *Gardenieae.*

Ovules 1 or 2 in each cell of the ovary.

Ovules 2 in each cell of the ovary.

Fruit capsular, 2-celled.....III. *Henriquezieae.*

Fruit drupaceous, 5–7-celled.....X. *Retiniphylleae.*

Ovule 1 in each cell.

Ovules pendulous.

Stamens inserted in the throat of the corolla tube. XI. *Guettardeae.*

[1] The key is adapted from that published by Wernham for the tropical American genera: Journ. Bot. 54: 326. 1916.

Stamens inserted at the base of the corolla tube. XII. *Chiococceae.*

Ovules erect or ascending.

Corolla lobes contorted.....XIII. *Ixoreae.*

Corolla lobes valvate.

Ovules affixed to the base of the ovary.

Ovary 1-celled, or 2-celled but with a very thin septum. XV. *Coussareae.*

Ovary with 2 or more cells, the septum thick.

Flowers perfect; stamens usually inserted in the throat of the corolla; plants usually trees or shrubs. XVI. *Psychotrieae.*

Flowers usually dioecious; stamens usually inserted at the base of the corolla; plants mostly herbaceous. XVII. *Anthospermeae.*

Ovules affixed to the septum.

Stipules entire, not leaflike; plants trees or shrubs, the flowers in dense heads.....XIV. *Morindeae.*

Stipules fimbriate or leaflike; plants chiefly herbaceous.

Stipules fimbriate, not leaflike..XVIII. *Spermacoceae.*

Stipules resembling the leaves and forming whorls with them.....XIX. *Galieae.*

I. NAUCLEEAE

A single genus in Venezuela.....1. *Uncaria.*

II. CINCHONEAE

Corolla lobes valvate.

Placenta pendulous from the apex of the cell. Flowers in elongate spikes.....2. *Alseis.*

Placenta ascending or erect, or adnate to the middle of the septum.

Placenta ascending or erect from the base of the septum; plants scandent.....3. *Manettia.*

Placenta adnate to the middle of the septum; plants not scandent.

Capsule splitting from below upward.....4. *Cinchona.*

Capsule splitting from above downward.

Valves of the capsule bifid.....5. *Remijia.*

Valves entire.....6. *Ladenbergia.*

Corolla lobes imbricate or contorted.
Corolla lobes contorted (one external in *Calycophyllum*).
Calyx lobes unequal, one of them expanded into a large colored limb.....7. *Calycophyllum.*
Calyx lobes equal or nearly so, none of them expanded into a colored limb.
Stamens unequal.....8. *Ferdinandusa.*
Stamens equal.
Calyx caducous; seeds bearded.....9. *Hillia.*
Calyx persistent; seeds not bearded.....10. *Cosmibuena.*
Corolla lobes imbricate.....11. *Coutarea.*

III. HENRIQUEZIEAE

Calyx 4-parted, the limb circumscissile.....12. *Henriquezia.*
Calyx 5-lobed, the lobes separately deciduous....13. *Platycarpum.*

IV. CONDAMINEAE

Calyx lobes unequal, one of them expanded into a brightly colored, large limb.....14. *Pogonopus.*
Calyx lobes equal or nearly so.
Anthers dehiscing longitudinally.....15. *Chimarrhis.*
Anthers dehiscing by pores.....16. *Tresanthera.*

V. RONDELETIEAE

Corolla lobes imbricate.
Calyx lobes, or at least one in some of the flowers, expanded into a large colored limb.
Calyx lobes very unequal, one of them in some flowers expanded into a large colored limb.....17. *Warscewiczia.*
Calyx lobes subequal, all of them large and brightly colored. 18. *Gleasonia.*
Calyx lobes subequal, usually small and inconspicuous, not brightly colored.
Seeds large, winged on one side.....19. *Sickingia.*
Seeds minute, not winged.....20. *Rondeletia.*
Corolla lobes contorted.
Plants low herbs, annual or perennial.
Stamens included; leaves opposite.....21. *Sipanea.*

Stamens exserted; leaves whorled.....22. *Limnosipanea.*
Plants trees or shrubs.
Stamens appendiculate at the base.....23. *Elaeagia.*
Stamens not appendiculate at the base.
Capsule loculicidal.....24. *Deppea.*
Capsule septicidal.....25. *Chalepophyllum.*

VI. HEDYOTIDEAE

A single genus in Venezuela.....26. *Arcytophyllum.*

VII. MUSSAENDEAE

Inflorescence terminal.
Flowers arranged in involucrate heads.
Leaves apparently alternate.....27. *Didymochlamys.*
Leaves opposite.....28. *Schradera.*
Flowers in panicles, these sometimes spikelike, never in heads.
Inflorescence elongate, narrow, spikelike.....29. *Gonzalagunia.*
Inflorescence a thyrsoid panicle.....30. *Isertia.*
Inflorescence axillary.
Plants creeping herbs. Flowers usually in dense heads.
31. *Coccocypselum.*
Plants trees or shrubs, sometimes herbaceous and scandent.
Leaves with numerous close parallel striolae in the areolae between the veins. Flowers zygomorphic; fruit 1-celled.
32. *Tammsia.*
Leaves without close striolation.
Stamens exserted, plants erect.....33. *Evosmia.*
Stamens included; plants usually scandent.....34. *Sabicea.*

VIII. HAMELIEAE

Ovary 4–5-celled.
Corolla lobes contorted; flowers white or whitish...35. *Bertiera.*
Corolla lobes imbricate; flowers red or yellow.....36. *Hamelia.*
Ovary 2-celled. Inflorescence axillary.....37. *Hoffmannia.*

IX. GARDENIEAE

Flowers perfect.
Inflorescence terminal or terminal and axillary.

Corolla somewhat irregular, the buds curved. Corolla tube much elongate, several times longer than the lobes. 38. *Posoqueria.*

Corolla regular, the buds not curved.

Flowers in few- or many-flowered cymes.....39. *Tocoyena.*

Flowers mostly solitary or fasciculate.....40. *Randia.*

Inflorescences lateral.

Corolla tube villous in both throat and base; stigma tapering; testa of the seeds fibrous.....41. *Genipa.*

Corolla tube villous in throat or base but not in both; stigma not tapering; testa not fibrous.

Ovary 2-celled.....40. *Randia.*

Ovary 1-celled.....46. *Gardenia.*

Flowers dioecious.

Stipules forming a conical cap, connate into a sheath, deciduous above a circular slit, leaving a persistent basal caruncle.

Staminate flowers in cymes, the pistillate usually solitary, rarely 2–3 in a head.....42. *Duroia.*

Staminate and pistillate flowers both in cymes...43. *Amaioua.*

Stipules free or united only near the base, not forming a cap that is dehiscent by a transverse slit.

Staminate flowers in spikes.....44. *Stachyarrhena.*

Staminate flowers in heads or cymes.

Staminate flowers lateral; plants usually armed with spines. 40. *Randia.*

Staminate flowers terminal; plants unarmed...45. *Alibertia.*

X. RETINIPHYLLEAE

A single genus in Venezuela.....47. *Retiniphyllum.*

XI. GUETTARDEAE

Corolla lobes imbricate in bud.

Fruit separating into 2 narrow dry cocci.....48. *Machaonia.*

Fruit drupaceous, indehiscent.

Calyx 5-parted; stipules trifid.....49. *Neoblakea.*

Calyx truncate; stipules not trifid.....50. *Guettarda.*

Corolla lobes valvate.

Tube of the corolla short and thick.....51. *Malanea.*

Tube of the corolla slender and much elongate.
Corolla lobes corniculate outside at the apex....52. *Chomelia.*
Corolla lobes not corniculate.....53. *Anisomeris.*

XII. CHIOCOCCEAE

Inflorescence terminal.
Fruit a capsule.....54. *Duidania.*
Fruit a drupe with 5–many nutlets.....55. *Erithalis.*
Inflorescence axillary.....56. *Chiococca.*

XIII. IXOREAE

Calyx calyculate at the base.....57. *Coffea.*
Calyx naked at the base.....58. *Ixora.*

XIV. MORINDEAE

Flowers confluent by their calyces; style 2-branched..59. *Morinda.*
Flowers distinct; stigma capitate.....60. *Appunia.*

XV. COUSSAREAE

Seeds vertical; ovules connate, borne on a common basal column. 61. *Coussarea.*
Seeds horizontal; ovules separate in a 1-celled ovary, collateral, basilar.....62. *Faramea.*

XVI. PSYCHOTRIEAE

Ovary partly or almost wholly superior.....63. *Pagamea.*
Ovary inferior.
Inflorescence an involucrate head (heads often compound in *Cephaelis*).
Plants creeping herbs; seeds flat on the ventral side.64. *Geophila.*
Plants usually large shrubs; seeds deeply furrowed on the ventral side.....65. *Cephaelis.*
Inflorescence not involucrate, or very rarely so.
Fruiting carpels much compressed laterally, the fruit didymous; plants herbaceous or suffrutescent.....66. *Declieuxia.*
Fruiting carpels not compressed laterally; plants mostly trees or shrubs.

Seed with inrolled ventral surface; stipules pectinately lobed or with setiform appendages.....67. *Rudgea.*

Seed not with inrolled ventral surface; stipules mostly entire or bilobate on each side.

Corolla tube straight, not gibbous at the base. 68. *Psychotria.*

Corolla tube elongate, more or less curved, gibbous at the base. Branches of the inflorescence usually red or yellow.....69. *Palicourea.*

XVII. ANTHOSPERMEAE

A single genus in Venezuela.....70. *Nertera.*

XVIII. SPERMACOCEAE

Fruit not separating into cocci, dehiscent as a whole or indehiscent.

Fruit indehiscent. Plants malodorous.....71. *Tobagoa.*

Fruit circumscissile.

Ovary 2-celled.....72. *Mitracarpus.*

Ovary 3–4-celled.....73. *Perama.*

Fruit separating into cocci.

Flowers in panicled umbels. Plants scandent...74. *Emmeorrhiza.*

Flowers not in umbels.

Cocci indehiscent.

Cocci 3–4.....75. *Richardia.*

Cocci 2.....76. *Diodia.*

Cocci, at least one of them, dehiscent.

Cocci opening only at the base. Flowers axillary. 77. *Hemidiodia.*

Cocci opening at the apex.

Cells of the fruit unlike, one opening, the other remaining closed.....78. *Spermacoce.*

Cells of the fruit alike, both opening.....79. *Borreria.*

XIX. GALIEAE

Flowers surrounded by a calyx-like involucre.....80. *Relbunium.*

Flowers not involucrate.....81. *Galium.*

1. UNCARIA Schreb.

Uncaria guianensis (Aubl.) Gmel. Syst. 370. 1796. *Ourouparia guianensis* Aubl. Pl. Guian. 177. *pl. 168.* 1775.

Along Lora River, Zulia, *Pittier 10950* (W). Ranging to Brazil and Bolivia.

A large coarse scandent shrub, armed with stout recurved spines; leaves elliptic or oval, abruptly short-acuminate, glabrous; flowers small, white, disposed in dense globose long-stalked heads; fruit dry and nutlike.

Aublet reports the Carib name of the plant as "you rouoari," and the French name as "liane-acrochet."

2. ALSEIS Schott

Alseis labatioides Karst. ex Schum. in Mart. Fl. Bras. 6^6: 190. 1889. *A. leiantha* Blake, Contr. U. S. Nat. Herb. 20: 531. 1924.

Campanero, near Puerto Cabello, *Karsten* (photo. of type ex herb. Berol. in herb. Field Mus.). Road from Puerto Cabello to San Felipe, Carabobo, 10–100 m., in forest, *Pittier 8850* (W, type of *A. leiantha;* G), *9099* (G). Near Colonia Tovar, *Fendler 1317* (K).

A tree 8–10 m. high, the branchlets 4-angled; stipules lance-subulate, 2 cm. long, deciduous; leaves short-petiolate, membranaceous, the blades narrowly elliptic-obovate, 14–18 cm. long, 2.5–4.5 cm. wide, acuminate, long-attenuate to the base, sparsely hirtellous or glabrate; flowers in elongate spikes; calyx 5-lobate, 1.5 mm. long, the lobes lanceolate, acute, glabrous; corolla greenish yellow, tubular-campanulate, 5.5 mm. long, glabrous outside, pilose within; stamens long-exserted; capsule clavate, 10–13 mm. long.

3. MANETTIA L.

Manettia calycosa Griseb. Fl. Brit. W. Ind. 330. 1861.

Between Cagüita and Los Rastrojos, *Pittier 9215* (W, Y). Chacaito Gorge, near Caracas, in thicket, *Pittier 9934* (W, Y). Guinand Estate, Siquire Valley, Miranda, 500–1,000 m., *Pittier 5971* (B, W), *7082* (W). Las Mostazas, Miranda, 950 m., *Allart 218* (B, W, Y). San Pablo de Mendoza, Trujillo, 1,400 m., *Pittier 10746* (W, Y). Colonia Tovar, *Fendler 588* (M). Hacienda Paloma, Miranda, 900–1,200 m., *Pittier 13051* (F, W, Y). Minca, *Funck* 438 (P). Maracaibo, *Plée 104* (P). Prov. Caracas, 900 m., *Funck & Schlim 153* (P). Also in Colombia and Haiti.

An herbaceous vine; leaves thick, lanceolate or lance-ovate, long-acuminate, scaberulous or puberulent or glabrate, conspicuously veined; calyx lobes 4, lanceolate or ovate, 3.5–5 mm. long, acute; corolla red, tomentulose, 17–20 mm. long; capsule obovoid-globose, 5–6 mm. long, tomentulose.

Manettia coccinea (Aubl.) Willd. Sp. Pl. 1: 624. 1797. *Nacibea coccinea* Aubl. Pl. Guian. 96. *pl. 37, f. 1.* 1775. *M. uniflora* HBK.

Nov. Gen. & Sp. 3: 387. 1820. *M. cuspidata* Bert. ex Spreng. Syst. Veg. 1: 415. 1825.

Type of *M. uniflora* from Caripe at 1,000 m., *Humboldt & Bonpland.* Guaremales Road, Carabobo, 10–100 m., *Pittier 9128* (P, W, Y). Cristóbal Colón, *Broadway 642* (W). Widely distributed in tropical America.

Plants glabrous or sparsely and minutely puberulent on the younger parts; stipules truncate or acute; leaves large, ovate, long-acuminate, rounded at the base; calyx lobes 8, linear, 5–10 mm. long, recurved; corolla red or pale red, glabrous outside, 17–20 mm. long; capsule 6–10 mm. long, subglobose.

The plant is a frequent weed of the lowlands in many parts of tropical America.

Manettia coccocypseloides Wernham, Kew Bull. 1914: 64. 1914.

Tabay, 2,200 m., moist forest, *Gehriger 394* (F). Also in Colombia.

A slender scandent herb, the stems puberulent; leaves lanceolate to ovate, acuminate, puberulent; stipules small, broadly ovate; flowers arranged in few-flowered cymes; calyx lobes 4, linear-oblong, 3–4 mm. long; corolla white, 1 cm. long, puberulent outside; capsule subglobose, sparsely puberulent or glabrate.

Manettia Lindenii Sprague, Bull. Herb. Boiss. II. 5: 833. 1905.

Agua de Obispo, Prov. Trujillo, *Linden 1439* (L, type collection). Prov. Trujillo, 2,250 m., *Funck & Schlim 758* (P). Andes of Trujillo and Mérida, *Linden 313* (P).

Branchlets puberulent; stipules truncate, glandular-ciliate; leaves ovate, 2–3 cm. long, acuminate, rounded at the base, coriaceous, glabrous, shining above, the veins prominent; flowers in terminal and axillary cymes, short-pedicellate; calyx lobes 4 (rarely 6), deltoid, subobtuse, less than 1 mm. long; corolla described by the collectors as either blue or white, sparsely and minutely puberulent, 7 mm. long; capsule subglobose, 4 mm. long, glabrous.

The type collection was listed by Schumann (in Mart. Fl. Bras. 6^6: 181. 1889) as *Manettia Lygistum* Sw., var. *typica* Schum. Wernham (Gen. Manettia 28. 1919) ascribes the species erroneously to Colombia.

Manettia marginata Schum. in Mart. Fl. Bras. 6^6: 178. 1889.

Type from the Orinoco River, *Bonpland* (photo. ex herb. Berol. in F).

Branchlets minutely pubescent, becoming glabrate; leaves short-petiolate, the blades oblong, ovate-lanceolate, or lanceolate, acute or acuminate, marginate, coriaceous, appressed-puberulent beneath on the veins, otherwise glabrous, the veins inconspicuous, not reticulate; cymes axillary, 2–5-flowered, shorter than the leaves; hypan-

thium minutely puberulent; calyx lobes as long as the hypanthium, oblong, acute; corolla 5 mm. long, the lobes one-third as long as the tube; capsule glabrous.

Manettia meridensis Schum. in Mart. Fl. Bras. 6[6]: 178. 1889.

Prov. Mérida, 1,600 m., *Linden 331* (L, P, type collection). Quirorá, Mérida, *Jahn 688* (W). Schumann reports also *Linden 350* and *Moritz 975* from Mérida. The species occurs in Colombia.

Leaves thick, narrowly lanceolate to elliptic, long-acuminate, acute to obtuse at the base, glabrous above, appressed-pilose beneath along the veins when young; calyx lobes 4, lanceolate or oblong, elongate; hypanthium white-tomentose; corolla white, pink, or red, puberulent within, the lobes half as long as the tube.

Manettia microcarpa Schum. in Mart. Fl. Bras. 6[6]: 179. 1889.

Type from Carabobo, *Linden 1542*. Schumann reports also *Moritz 481* from Puerto Cabello. Patanemo Valley, Carabobo, in coffee plantations, *Pittier 8660* (W). Colonia Tovar, *Fendler 1997* (M). Ocumare Valley, Aragua, humid forest, *Pittier 12554* (F, W, Y).

Glabrous throughout; leaves short-petiolate, the blades oblong, long-acuminate and cuspidate, acute at the base; stipules truncate; inflorescence axillary, several-flowered, much shorter than the leaves; calyx lobes 4, triangular-ovate, acute, equaling the hypanthium; corolla white, 5 mm. long, glabrous outside, the tube dilated above; capsule subglobose, glabrous, 2 mm. in diameter, the seeds few.

Manettia mollis Moritz ex Wernham, Gen. Manettia 35. 1919.

Type from Mérida, *Moritz* without number and *839* in part. Wernham reports also a collection, without locality, by *Birschel*. Colonia Tovar, *Fendler 587* (M). Galipán, Distrito Federal, *Allart 163* (W).

Stems pulverulent-puberulent, stipules short, apiculate; leaves short-petiolate, membranaceous, the blades lanceolate to elliptic, acuminate, 2–4 cm. long, 3–4 mm. wide, pubescent; calyx lobes 4, broadly ovate, acuminate, accrescent, subfoliaceous; corolla puberulent outside, at least on the lobes, the tube 10 mm. long, the lobes 5 mm. long, oblong; capsule broadly ellipsoid, puberulent, 1 cm. long, 6 mm. wide.

Some of the specimens listed above were cited incorrectly by Schumann (in Mart. Fl. Bras. 6[6]: 176. 1889) under *Manettia racemosa* R. & P.

Manettia Moritziana (Schum.) Wernham, Gen. Manettia 31. 1919. *M. Lygistum* Sw., var. *Moritziana* Schum. in Mart. Fl. Bras. 6[6]: 180. 1889.

Type collected near Mérida, *Moritz 976* (F; Wernham gives the locality as Faji). Tabay, 2,200 m., moist forest, *Gehriger 399* (F).

A glabrous scandent herb; stipules truncate; leaves short-petiolate, firm-chartaceous, the blades elliptic, 4–7 cm. long, 1.5–2.3 cm. wide, caudate-acuminate, acute at the base; flowers paniculate; calyx lobes 4, fleshy, broadly ovate to suborbicular, more or less rounded at the apex, 2.3 mm. long or less; corolla blue, glabrous outside, 8 mm. long.

Manettia Schumanniana Sprague, Bull. Herb. Boiss. II. 5: 834. 1905. *M. Lygistum* Sw., var. *glabrata* Schum. in Mart. Fl. Bras. 6[6]: 181. 1889.

Colonia Tovar, *Fendler 589* (M, type collection). Silla de Caracas, *Kuntze 1615* (W, Y); alt. 2,000–2,600 m., *Pittier 8337* (W). Mountains near Galipán, *E. Pittier 116* (W, Y). Cerro de Galipán, 1,350–1,800 m., *Eggers 13564* (W). Mérida, *Engel* (L). *Moritz 1807* is reported by Schumann and by Wernham (Gen. Manettia 29. 1919).

Stems minutely and sparsely puberulent; stipules subtruncate or triangular, glandular-ciliate; leaves short-petiolate, the blades ovate or ovate-oblong, 4–7 cm. long, 1.5–3.5 cm. wide, acuminate, obtuse at the base, glabrous; cymes few- or many-flowered, the pedicels 1.5 cm. long or less; calyx lobes 4, narrowly triangular, subobtuse, 1 mm. long; corolla blue, glabrous outside, the tube 10 mm. long, the oblong lobes 4.5–5 mm. long; capsule obovoid, 5 mm. long, short-pubescent.

Pittier 8337 is listed wrongly by Knuth (Init. Fl. Venez. 662. 1928) under *Manettia Lygistum* Sw.

Manettia Sonderiana Wernham, Gen. Manettia 30. 1919.

The type is *Moritz 839*, in part, without definite locality (photo. in F). Prov. Mérida, 1,800 m., *Linden 350* (L).

Stems sparsely hirtellous; stipules reduced almost to a line; leaves petiolate, firm-chartaceous, the blades ovate-elliptic, 4.5–7 cm. long, 2–3 cm. wide, glabrate, acuminate, acute at the base; flowers umbellate, the umbels 2–3-flowered, axillary, the pedicels 5 mm. long; calyx lobes 4, broadly lanceolate, subfoliaceous, becoming glabrous, acuminate, 3–5 mm. long; corolla red, glabrous outside, the tube 18 mm. long, the lobes 3.5 mm. long; capsule oblong-ellipsoid, 5 mm. long, glabrous.

4. CINCHONA L.

Cinchona Henleana Karst. in Koch & Fint. Wochenschr. 2: 31. 1859; Fl. Columb. 1: 55. *pl. 27*. 1859.

Type from wet forests of Colonia Tovar at 1,800 m., *Karsten*. Colonia Tovar, 1,860 m., *Fendler 580* (G, M). Hacienda Puerto La Cruz, Distrito Federal, *Pittier 8053* (W). Also in Colombia.

A tree 15 m. high, the branches minutely tomentose; stipules triangular-ovate, acuminate, tomentose, the margins revolute; leaves petiolate, the blades oblong-obovate, 20–40 cm. long, 7–15 cm. wide, acute or acuminate, narrowed to the base, glabrous above, hirtellous beneath on the veins; panicles terminal or pseudo-axillary, few-

flowered, the flowers sessile or nearly so; calyx large, 5–7 mm. long, truncate or obscurely denticulate, minutely tomentose; corolla pink, coriaceous, densely sericeous, the tube 2.5 cm. long, the 5 lobes oblong, obtuse, shorter than the tube; capsule oblong, densely and minutely tomentose, 3.5–4 cm. long.

This is easily recognized by the very large calyx. The pubescence of the corolla lobes would indicate that the species might well be placed in the genus *Ladenbergia*, but the capsule is typical of *Cinchona*.

Cinchona lancifolia Mutis, which is a synonym of *C. officinalis* L., is listed by Knuth (Init. Fl. Venez. 661. 1928) for Venezuela, but without cited authority. Apparently there is no reason for assuming that this species is a member of the Venezuelan flora.

Cinchona pubescens Vahl, Skrivt. Naturh. Selsk. 1: 19. 1790. *C. cordifolia* Mutis ex Humb. Ges. Naturf. Freund. Berlin Mag. 1: 117. 1807. *C. pubescens* α *cordata* DC. Prodr. 4: 353. 1830.

Weddell (Hist. Quinquin. 56. 1849) states that he had seen a specimen of this species collected in the "province de Caracas" in 1829 by Vargas, and Pittier (Pl. Usual. Venez. 353) intimates that it grows in the high forests of the Andes. The present writer has seen no Venezuelan specimens. The species ranges from Colombia to Bolivia, in the higher mountains.

A medium-sized tree, the trunk 30 cm. or more in diameter, the branchlets pubescent; stipules free, ovate, large, obtuse or acute, caducous, sericeous or glabrate; leaves petiolate, the blades commonly broadly ovate to orbicular, large, rounded to acute at the apex, cordate to acute at the base, usually glabrate above but often pubescent, beneath densely pilose to almost glabrous, often scrobiculate; inflorescence terminal, paniculate, leafy, large and many-flowered, open, the flowers subsessile; hypanthium sericeous; calyx 5-dentate, minutely sericeous or tomentulose; corolla red or pink, sericeous, the tube 1 cm. long, the lanceolate lobes 5–7 mm. long, villous within; capsule lanceolate or oblong, glabrate, 1.5–2.5 cm. long.

"Quina." The various forms of this species are the principal source of the drug quinine. According to Pittier, cinchona bark formerly was exported from the mountains of Venezuela, and probably was obtained from this species. The chief cinchona centers, however, are much farther south, in Ecuador, Peru, and Bolivia.

Cinchona tucujensis Karst. Fl. Columb. 1: 17. *pl. 9.* 1858.

Type from Carache, at the foot of Páramo de Las Rosas, mountains of Mérida, 1,500 m., *Karsten.*

A tree 6–10 m. high, the bark yellowish-fuscous, the branchlets yellowish-tomentose; stipules oval, acute, pilose; leaf blades membranaceous, elliptic, 16–20 cm. long, 10–13 cm. wide, acute, attenuate to obtuse at the base, pilosulous above, beneath densely tomentose-pubescent; panicles terminal, leafy, large and many-

flowered, the flowers subsessile, 1.5 cm. long; calyx 5-dentate, pilosulous; corolla pink, pilose, the lobes villous on the margin; capsules oblong or oval, 1–4 cm. long, 5–7 mm. thick, glabrate.

According to Karsten, the bark formerly was exported on a large scale under the name of "quinquina de Maracaibo." This species is closely related to *C. cordifolia*, and perhaps only a form or variety of it.

5. REMIJIA DC.

Remijia firmula (Mart.) Wedd. Hist. Quinquin. 93. 1849. *Cinchona firmula* Mart. Reise Bras. 3: 1286. 1831.

Reported by Schumann (in Mart. Fl. Bras. 6^6: 156. 1889) from San Carlos on the Río Negro, *Spruce 2954*. Also in northern Brazil.

Branchlets cinereous-villous; leaves petiolate, the blades oblong, 10–25 cm. long, acute, attenuate to the base, strigillose beneath, coriaceous; inflorescences large, axillary, longer than the leaves; calyx ferruginous-tomentose, 2 mm. long, the lobes subulate, very acute; corolla 2 cm. long, ferruginous-tomentose, the lobes linear-lanceolate, equaling the tube; capsule pyriform, 1 cm. long.

Remijia hispida Spruce ex Schum. in Mart. Fl. Bras. 6^6: 150. 1889.

Type from banks of the Orinoco near Esmeralda, *Spruce 3428* (photo. in F). Rocky top of Esmeralda Ridge, 100 m., *Tate 214* (Y). Among bushes at base of Esmeralda Ridge, *Tate 277* (F, Y).

A shrub; stipules linear-oblong, acuminate, 2.5 cm. long; leaves coriaceous, petiolate, the blades oblong-lanceolate, 9–14 cm. long, 3–4.5 cm. wide, acuminate, acute at the base, ferruginous-hispid; inflorescence hispid, pedunculate, the flowers short-pedicellate; calyx tubular, 1 cm. long, obsoletely repand-dentate; corolla 3.5–4 cm. long, villous, the lobes linear-lanceolate, half as long as the tube; capsule oblong, 1.5–1.8 cm. long, 8 mm. wide, ferruginous-hispid.

Remijia laevifolia, sp. nov.—Frutex, ramulis crassis glabris, internodiis abbreviatis; stipulae magnae acutae sparse strigosae caducae; folia coriacea brevissime petiolata, lamina oblonga vel anguste elliptico-oblonga acuminata basi acuta glabra; inflorescentiae axillares longe pedunculatae conferto-cymosae dense multiflorae, floribus sessilibus; calyx profunde lobatus, laciniis anguste lanceolato-triangularibus attenuatis; capsula elliptico-oblonga parva adpresso-pilosula.

A large shrub, the young branches stout, subterete or somewhat compressed, glabrous, the internodes 1–1.5 cm. long; stipules caducous, elliptic-oblong, about 2.5 cm. long and 9 mm. wide, acute, sparsely strigose; leaves very shortly petiolate, opposite, coriaceous, the petioles stout, about 5 mm. long; leaf blades oblong or narrowly elliptic-oblong, 12–13 cm. long, 4–5 cm. wide, acuminate, with acute

tip, at the base acute, glabrous, lustrous above, the costa subimpressed, the veins evident but scarcely elevated, beneath brownish and dull, the costa slender, elevated, the veins about 12 pairs, very inconspicuous and slender, diverging at an angle of nearly 45 degrees, obscurely anastomosing close to the margin; inflorescences axillary, cymose-corymbose, very dense and many-flowered, 4 cm. broad, borne on a stout, ascending, sparsely strigose peduncle 10.5 cm. long, the flowers sessile, crowded, the primary branches of the inflorescence 7 mm. long or less, divaricate, densely ochraceous-strigose, the bracts 6 mm. long or less, persistent, linear or linear-subulate, rigid, spreading, appressed-pilosulous; calyx 4–5 mm. long, persistent at the apex of the capsule, strigillose, 5-lobate to below the middle, the segments narrowly lance-triangular, long-acuminate, suberect; capsule elliptic-oblong, 7–10 mm. long, 3–4 mm. broad, obscurely bisulcate, ferruginous, rather densely appressed-pilosulous, acutish at the base and obtuse at the apex.—Venezuela: Mount Duida, dry ridge tops, Savanna Hills, alt. 1,320 m., *G. H. H. Tate 802* (herb. N. Y. Bot. Gard., type; photo. in herb. Field Museum).

Leaves with red midveins. The plant represented by the type specimen evidently is closely related to *R. tenuiflora* Benth., but it seems to be fairly distinct, although ampler material may show that it can not be maintained as a separate species. *R. tenuiflora*, according to type and other material, differs in having much longer petioles, less strongly coriaceous leaves, a much laxer inflorescence, and more slender capsules.

Remijia pacimonica, sp. nov.—Folia quaternata sessilia subcoriacea, lamina oblongo-obovata c. 84 cm. longa et 29 cm. lata, apice rotundata et abrupte acuminato-apiculata, acumine triangulari acuto 12 mm. longo, basin versus longe angustata, supra in sicco fusca, glabrata, tantum ad venas breviter pilosula, subtus pallidior, ubique densiuscule pilis brevibus arcte adpressis pallidis rigidiusculis pilosula, costa crassa elevata, nervis lateralibus numerosis angulo lato adscendentibus rectis vel subarcuatis gracilibus elevatis, nervulis vix elevatis arcte reticulatis; inflorescentia cymoso-racemosa pedunculata 12 cm. longa, cymis ternatis vel quaternatis remotis usque ad 1.5 cm. longe pedunculatis, rhachi densissime adpresso-pilosula, cymulis paucifloris, bracteis lanceolatis vel anguste ovatis brevibus acutis vel acuminatis dense adpresso-pilosulis, floribus sessilibus; hypanthium oblongum 6–7 mm. longum 4 mm. latum dense subadpresse ferrugineo-pilosum basi obtusum vel acutiusculum; calyx 2.5–3 mm. altus dense adpresso-pilosulus breviter dentatus, dentibus remotis triangularibus acutis erectis; corolla in alabastro 24 mm. longa densissime adpresso-pilosa 3 mm. crassa apice obtusa, lobis tubo longioribus.—Venezuela: In silvis secus originem fluminis Pacimoni, February, 1854, *R. Spruce* (herb. Kew., type).

The available material is incomplete, consisting of a single detached leaf and one apparently incomplete inflorescence with

flower buds. The species is related to *Remijia amazonica* Schum., which is distinguished by its much smaller leaves and smaller flowers.

Remijia roraimae (Benth.) Schum. in Mart. Fl. Bras. 6^6: 154. 1889. *Cinchona roraimae* Benth. in Hook. Journ. Bot. 3: 214. 1841. *Cascarilla roraimae* Wedd. Hist. Quinquin. 89. 1849. *Ladenbergia roraimae* Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15*. 1846.

Type collected among undershrubs in the Roraima Mountains at 1,200 meters, *Schomburgk 451*. Reported also from the upper Amazon in Brazil.

Branchlets ferruginous-tomentose; leaves petiolate, the blades oblong or oblong-lanceolate, 10–13 cm. long, acute, cuneate at the base, subtomentose or in age glabrous above, beneath ferruginous-tomentose; inflorescences longer than the leaves, the flowers short-pedicellate; calyx obsoletely 5–6-dentate, 2–3 mm. long, densely villous; corolla 3 cm. long, appressed-pilose or villous, the lobes narrowly triangular; capsule globose, rounded at the base, 12–15 mm. long, ferruginous-tomentose.

Remijia tenuiflora Benth. in Hook. Journ. Bot. 3: 214. 1841.

Agüita, Mount Duida, 930 meters, *Tate 930* (Y). Also in British Guiana, and along the Rio Negro in Brazil.

A small tree, the branchlets sericeous; leaves short-petiolate, the blades oblong-lanceolate or oblong, 8.5–14 cm. long or larger, acute, cuneate at the base, glabrous or minutely pilose only on the veins; inflorescence usually shorter than the leaves and rather few-flowered, the flowers short-pedicellate; calyx campanulate, sericeous, 3–4 mm. long, the lobes subulate; corolla about 2 cm. long, the lobes linear-lanceolate, acute, half as long as the tube; capsule clavate, 1.5–2.2 cm. long, 1.5–1.7 cm. wide.

Although the specimen from Mount Duida is noteworthy for its large and many-flowered inflorescences, and for the large leaves with almost perpendicular veins, probably it is no more than a form of *R. tenuiflora*, and I see no good reason for considering it a distinct species.

6. LADENBERGIA Klotzsch

Ladenbergia Lambertiana (A. Br.) Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15*. 1846. *Cinchona Lambertiana* A. Br. ex Mart. Reise Bras. 3: 1286. 1831. *Ladenbergia Schomburgkii* Klotzsch, loc. cit. *Cascarilla Lambertiana* Wedd. Hist. Quinquin. 85. 1849.

Río Casiquiare, *Spruce* (K). Rocky top of Esmeralda Ridge, *Tate 206* (Y). Reported by Schumann (in Mart. Fl. Bras. 6^6: 147. 1889) from Roraima, *Schomburgk 547*. Also in Amazonian Brazil and in British Guiana.

Branchlets puberulent or glabrate; stipules triangular-lanceolate, 3–4 cm. long; leaves petiolate, coriaceous, the blades oblong-lanceo-

late or oblong, 12–18 cm. long, acuminate to subobtuse, truncate or subcordate at the base, glabrous; inflorescence paniculate, 15–20 cm. long, the branches ferruginous-pilose, the flowers short-pedicellate; calyx 1.5–2 mm. long, denticulate; corolla subsericeous, the lobes lanceolate, subobtuse, half as long as the tube or shorter; capsule lanceolate, 1.5–6 cm. long, 8 mm. thick.

Ladenbergia lucens, sp. nov.—Arbor, ut videtur omnino glabra (corollis non visis); stipulae caducae lanceolato-oblongae acuminatae; folia crasse coriacea crasse petiolata, lamina oblongo-elliptica vel elliptico-ovata, apice obtusa vel rotundata, basi late rotundata, supra lucidissima, subtus pallidiore; inflorescentia terminalis laxe pauciflora pedunculata, floribus pedicellatis; calyx profunde 5-fidus, laciniis triangularibus acuminatis.

A straggling tree, completely glabrous except possibly on the corolla (corollas not seen), the young branches stout, subterete or slightly compressed, ochraceous or ferruginous, the internodes mostly 3.5–4.5 cm. long; stipules caducous, 15 mm. long and 7–8 mm. wide, lance-oblong, acuminate; leaves petiolate, opposite, thick-coriaceous, oblong-elliptic to elliptic-ovate, 10.5–18.5 cm. long, 4–11 cm. wide, slightly narrowed toward the rounded or very obtuse apex, at the base rounded or broadly rounded or rarely acutish, bright green and very lustrous on the upper surface, the costa and veins conspicuous and somewhat prominent, beneath much paler, dull, the costa stout, elevated, the veins about 8 pairs, prominent, pale, ascending at an acute or rather broad angle, arcuate, anastomosing close to the slightly revolute margin, the ultimate veinlets evident but inconspicuous and not elevated; inflorescence terminal, laxly cymose-paniculate, few-flowered, about 7 cm. long, borne on a stout peduncle 2–4 cm. long, the flowers chiefly on short stout pedicels; hypanthium clavate, about 6 mm. long, long-attenuate to the base; calyx 3.5–4 mm. long, deeply 5-fid, the segments triangular, acuminate, erect; corollas and capsules unknown.—Venezuela: Mount Duida, bank of stream at Central Camp, alt. 1,440 meters, *G. H. H. Tate 558* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.).

The material upon which this description is based is incomplete and far from satisfactory for study, but it seems to represent a species unlike any illustrated in the large series of the genus found in the herbarium of Field Museum. Since it is improbable that the plant will be re-collected soon, it is perhaps best to give it a name, although the writer realizes that already too many species have been proposed in *Ladenbergia*.

Ladenbergia macrocarpa (Vahl) Klotzsch (*Cascarilla macrocarpa* Wedd.) is listed for Venezuela by Knuth, Init. Fl. Venez. 662. 1928, but the species is known only from Colombia, Ecuador, and Peru.

Ladenbergia magnifolia (R. & P.) Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cinchona magnifolia* R. & P. Fl. Peruv. 2: 53. *pl. 196.* 1799.

San Carlos, Amazonas, 100 meters, *Holt & Gehriger 296* (F). Colombia to Bolivia.

A tree with cinnamon-brown bark; stipules 2–3 cm. long, acute, sericeous; leaves petiolate, the blades broadly elliptic to oblong-elliptic, 10–30 cm. long, obtuse or acute, acute to rounded at the base, glabrous above, barbellate beneath in the axils of the veins; inflorescence paniculate, long-pedunculate; calyx lobes triangular-ovate, acute, tomentulose; corolla white, 1.5 cm. long, the lobes lanceolate, acute, equaling or shorter than the tube; capsule linear-oblong or lanceolate, 2.5–7 cm. long, 7–10 mm. thick, glabrate.

Ladenbergia Lambertiana probably is not specifically distinct from this species.

Ladenbergia Moritziana Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cascarilla citrifolia* Wedd. Ann. Sci. Nat. III. 10: 11. 1848. *Buena citrifolia* Wedd. Journ. Linn. Soc. 11: 187. 1869. *Cinchona Moritziana* Karst. Fl. Columb. 1: 133. *pl. 66.* 1861.

Type from Galipán. Colonia Tovar, 1,950 meters, *Fendler 579* (G, M, Y). Prov. Caracas, 1,350 meters, *Funck & Schlim 104* (P). Type of *Cascarilla citrifolia* from Venezuela, without indication of the locality or collector.

A tree 12 meters high, the branchlets glabrous; stipules free or short-connate, oval, obtuse, glabrous; leaf blades oblong or obovate, about 15 cm. long and 7 cm. wide, coriaceous, obtuse or rounded at the apex, obtuse or acute at the base, glabrous, shining above; panicles few-flowered, glabrous; calyx lobes broadly ovate, obtuse; corolla whitish, 3.5–5 cm. long, coriaceous, subsericeous, the 5–6 lobes oblong, obtuse; capsule 4 cm. long, oblong-lanceolate or clavate, glabrous.

Cascarilla nitida Wedd., listed for Venezuela by Knuth (Init. Fl. Venez. 662. 1928), is a Colombian plant, synonymous with *Ladenbergia magnifolia.*

Ladenbergia Pittieri Standl. Field Mus. Bot. 8: 51. 1930.

Near La Cuchilla, Trujillo, on the road from Valera to Carora, *Pittier 12943* (F, type; W, Y). Carvajal, near Valera, Trujillo, *Pittier 11002* (W).

A tree 3–4 meters high with glabrous branchlets; stipules oblong-ovate, obtuse, 2.5–3 cm. long, glabrous; leaves short-petiolate, subcoriaceous, the blades broadly elliptic to elliptic-oval, 12–26 cm. long, acute or obtuse, rounded at the base and usually deeply cordate or subcordate, glabrous above and shining, glabrous beneath or barbate in the axils of the veins; panicle pedunculate, 7–9 cm. long or more, the branches appressed-pilosulous; calyx 2.5–3 mm. long,

glabrate, the lobes oblong, ciliate; corolla white, minutely appressed-pilose, the tube 25–28 mm. long, the lobes oblong-lanceolate, 7–9 mm. long; capsule linear, 3.8–5.5 cm. long, 4–5 mm. thick, glabrate.

Ladenbergia tovarensis (Karst.), comb. nov. *Cinchona tovarensis* Karst. Fl. Columb. 1: 134. 1861.

Type from Colonia Tovar, *Karsten.*

Closely related to *L. Moritziana*, according to Karsten; leaves ovate, acuminate, glabrous; stipules free or nearly so, obovate, acute, glabrous, papillose within at the base; capsule woody, linear-lanceolate.

Ladenbergia undata Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1846. *Cascarilla undata* Wedd. Ann. Sci. Nat. III. 10: 12. 1848. *Cinchona undata* Karst. Fl. Columb. 1: 131. *pl. 65.* 1861. *Buena undata* Wedd. Journ. Linn. Soc. 11: 187. 1869.

Type collected near Jaji, Mérida. Without locality, *Moritz 963* (G, W). Also in Colombia.

A large tree, the branchlets ferruginous-tomentose; stipules free or short-connate, hirsute; leaves short-petiolate, thick-coriaceous, the blades strongly bullate, elliptic or oval, obtuse or rounded at the apex, subcordate or rounded at the base, shining above, glabrate, tomentose beneath; panicles corymbiform, few-flowered, brown-tomentose; calyx lobes large, ovate-oblong, mostly obtuse; corolla hirsute-sericeous, 3–3.5 cm. long, the lobes shorter than the tube; capsule oblong, 4–5 cm. long, glabrate.

"Quinaquina."

7. CALYCOPHYLLUM DC.

Calycophyllum candidissimum (Vahl) DC. Prodr. 4: 367. 1830. *Macrocnemum candidissimum* Vahl, Symb. 2: 38. 1791.

Acarigua, *Alvarado 8732* (W). San Martín, Zulia, *Pittier 10517* (W). Reported also from the banks of the Orinoco. Widely distributed in tropical America, ranging northward to Mexico.

A tall forest tree; stipules triangular or lanceolate, 1 cm. long or shorter; leaves slender-petiolate, the blades rounded-oval to ovate, 4–13 cm. long, abruptly acuminate, at the base acute or obtuse and abruptly decurrent, glabrous above, beneath usually hirsute along the costa but elsewhere glabrous or nearly so; inflorescence corymbose, few- or many-flowered, the flowers arranged in small dense cymes; bracts brown, caducous, enclosing the buds; calyx in some of the flowers expanded into a showy petal-like limb, this subreniform to rhombic-ovate and 1.2–3 cm. long, white; corolla white, the tube 3 mm. long, densely villous in the throat, the lobes ovate-triangular, slightly longer than the tube; capsule 6–10 mm. long, oblong-cylindric, acute at the base; seeds numerous, small, brown, winged at each end.

"Betún," "araguato." The hard and very fine-grained wood is of good quality, and it is used for construction purposes. Although the tree is abundant in many parts of tropical America, it is reported as uncommon in Venezuela.

8. FERDINANDUSA Pohl

Ferdinandusa Goudotiana Schum. in Mart. Fl. Bras. 6[6]: 211. 1889.

Roraima, *Schomburgk 621* (P). Type from British Guiana, *Schomburgk 985*.

Young branchlets ferruginous-puberulent; leaves short-petiolate, the blades oblong to ovate-lanceolate, 11–22 cm. long, obtusely acuminate, acute at the base, glabrous above, pilose or glabrate beneath; inflorescence decussate-paniculate, leafy at the base, the branches ferruginous-tomentulose; hypanthium 1.5–2 mm. long; calyx almost 1 mm. long, 5-dentate, glabrous, ciliolate; corolla 15–17 mm. long, the lobes one-third as long as the tube, obliquely ovate.

Ferdinandusa guainiae Spruce ex Schum. in Mart. Fl. Bras. 6[6]: 208. 1889.

Type from the Río Guainia (Río Negro), above the mouth of the Río Casiquiare, *Spruce 3510* (photo. in F). Also in Amazonian Brazil.

Young branchlets glabrous; leaves short-petiolate, the blades oblong or obovate-oblong, 3–8 cm. long, subobtuse, acute to rounded at the base, glabrous; inflorescence terminal, few-flowered, leafy, short-pedunculate, the pedicels 7–20 mm. long; hypanthium 2 mm. long; calyx scarcely 1 mm. long, obsoletely 5–7-denticulate; corolla 3.8–4.2 cm. long, the lobes very short, obliquely ovate, glabrous; capsule linear-oblong, glabrous, 3.5–4.5 cm. long, woody; seeds linear, winged, 12–16 mm. long.

Ferdinandusa Sprucei Schum. in Mart. Fl. Bras. 6[6]: 210. 1889.

Type collected in the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3375* (photo. in F).

Branchlets minutely ferruginous-puberulent; leaves petiolate, the blades narrowly linear-oblong, 8.5–16 cm. long, shortly obtuse-acuminate, rounded or subcordate at the base or rarely acute, glabrous and shining; inflorescence short, leafy at the base, the pedicels very short, the flowers congested; hypanthium glabrous, 2 mm. long; calyx scarcely 1 mm. long, 4-dentate; corolla glabrous, 3 cm. long, the lobes very short, obliquely ovate; disk longer than the calyx; capsule siliquiform, glabrous, 12 cm. long and 5 mm. thick, attenuate to each end.

9. HILLIA Jacq.

Hillia parasitica Jacq. Enum. Pl. Carib. 18. 1760.

San Juan Mountain, Margarita Island, 550 meters, *Johnston 41* (F, W). Mount Duida, Desfiladero, 2,100 meters, *Tate* (Y). Widely distributed in tropical America.

A glabrous epiphytic shrub, sometimes scandent and several meters long; leaves petiolate, the blades chiefly elliptic, 6–14 cm. long, coriaceous, cuspidate-acuminate; flowers terminal, solitary, sessile; calyx 6-parted or absent; corolla white, the slender tube 6–10 cm. long; fruit an elongate narrow capsule.

10. COSMIBUENA R. & P.

Cosmibuena grandiflora (R. & P.) Rusby, Bull. N. Y. Bot. Gard. 4: 368. 1907. *Cinchona grandiflora* R. & P. Fl. Peruv. 2: 54. *pl. 198.* 1799. *Cosmibuena quinqueflora* Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1843.

Type of *Cosmibuena quinqueflora* from Los Andes, Mérida, *Moritz;* represented in herb. Field Mus. by a photo. and fragm. ex herb. Berol. Colombia to Bolivia.

A glabrous tree 5–12 meters high; leaves petiolate, coriaceous, the blades elliptic to oval or oblong-elliptic, rounded or very obtuse at the apex, shining; flowers in few-flowered terminal cymes; calyx about 1 cm. long; corolla white or ochroleucous, the tube 5–9 cm. long.

Cosmibuena triflora (Benth.) Klotzsch in Hayne, Arzneigew. 14: sub *pl. 15.* 1843. *Buena triflora* Benth. in Hook. Journ. Bot. 3: 216. 1841.

Reported by Schumann (in Mart. Fl. Bras. 6^6: 205. 1889) from the vicinity of Mount Roraima, *Schomburgk 995.* Also in other parts of British Guiana.

A glabrous epiphytic shrub; stipules caducous, 12–14 mm. long; leaves petiolate, coriaceous, the blades oblong to broadly elliptic, 8–14 cm. long, 4–6 cm. wide, subobtuse, acute at the base; inflorescence terminal, 3-flowered, the pedicels 2 cm. long; calyx lobed to the middle or less deeply, the lobes subulate, acuminate, unequal; corolla white, 9–11 cm. long, coriaceous, the lobes linear-lanceolate or obliquely ovate, obtuse.

11. COUTAREA Aubl.

Coutarea campanilla DC. Prodr. 4: 350. 1830.

Type from Caracas, *Vargas.* Near Colonia Tovar, *Fendler 1980* (K, M).

Leaves small, elliptic, glabrous above or nearly so, pubescent beneath, acute or acuminate; peduncles 1–3-flowered; calyx lobes linear, elongate, hirtellous; corolla half as large as in *C. hexandra;* capsule rounded-oval, 1.5–2 cm. long and nearly as broad, dark brown, with numerous pale lenticels, glabrous, very obscurely costate.

"Campanilla." The Fendler specimens are in fruit, and I have not seen flowers of this species.

Coutarea hexandra (Jacq.) Schum. in Mart. Fl. Bras. 6[6]: 196. 1889. *Portlandia hexandra* Jacq. Sel. Stirp. 63. *pl. 182, f. 20.* 1763. *C. speciosa* Aubl. Pl. Guian. 314. *pl. 122.* 1775.

Agua de Obispo, Trujillo, *Engel* (L). Las Cojobas, 300 m., *Saer 525* (F). Galipán, *Funck & Schlim 706* (P). Côte Ferme, *Plée 17* (P). Widely distributed in tropical America.

A shrub or small tree, glabrous or sparsely pubescent; leaves short-petiolate, the blades oblong to broadly ovate or elliptic, short-acuminate, glabrous or nearly so; flowers terminal, commonly in clusters of 2–3; calyx lobes 6, linear; corolla asymmetric, pinkish white to purplish, 4–5 cm. long, glabrous or puberulent; capsule strongly compressed, about 3.5 cm. long, often marked with large pale lenticels.

Reported also from Petare, Miranda (*Pittier 9784*); Hacienda de Cura, Carabobo (*Pittier 7919*); Perijá, Zulia (*Tejera 23*); Santa Ana, Margarita Island (*Ernst*).

Vernacular names reported as "campanilla" and "cabrito negro."

Coutarea hexandra (Jacq.) Schum., var. **pubescens** (Pohl) Schum. in Mart. Fl. Bras. 6[6]: 198. 1889. *C. pubescens* Pohl, Pl. Bras. Icon. 2: 148. *pl. 200.* 1831.

Roraima, *Schomburgk 526* (P). Widely distributed in South America.

Like the typical form, but leaves and corollas densely pubescent.

Coutarea Lindeniana Baill. Adansonia 12: 300. 1879.

Between Caracas and Mérida, *Linden 376* (K, type collection). Santa Ana, Trujillo, 1,700 m., *Jahn 1160* (W). Near Colonia Tovar, *Fendler 544* (K, M). Also in Colombia.

A shrub or small tree; leaves petiolate, the blades elliptic or oblong-elliptic, acuminate, glabrous or sometimes velvety-pubescent beneath; cymes dense and many-flowered; calyx lobes elongate, linear-subulate; corolla white, tinged with pink outside, 2.5–3.5 cm. long.

Exostema caribaeum (Jacq.) R. & S. is listed from Venezuela by Knuth, Init. Fl. Venez. 663. 1928, on the authority of Ernst. The species is a West Indian one, of which I have seen no Venezuelan specimens. Although it is not recorded from the mainland of South America, it might well be found in some of the drier regions of the Venezuelan or Colombian coasts.

12. HENRIQUEZIA Spruce

Henriquezia aturensis, sp. nov.—Arbor 8–10-metralis, ramulis crassis dense brunneo-tomentosis et pilis longis patentibus gracillimis pilosis; stipulae caducae, non visae; folia breviter petiolata opposita magna coriacea, petiolo crasso c. 8 mm. longo dense piloso; lamina oblongo-elliptica c. 18 cm. longa et 9 cm. lata apicem versus paullo angustata, apice anguste rotundato, basi breviter contracto-acuta, supra in sicco brunnescens dense minute patenti-pilosula, aspera, costa venisque subimpressis, subtus pallidior, mollis, densissime pilis longiusculis fulvis et albidis adpresso-pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 20 obliquis gracilibus prominentibus angulo semirecto adscendentibus parallelis rectis marginem attingentibus, nervulis obsoletis; inflorescentia terminalis sessilis foliis reductis onusta, basi trichotoma, ramis oppositis trichotomis dense tomentosis et pilosis crassis adscendentibus, floribus subumbellatis pedicellatis, pedicellis crassis 5–15 mm. longis, bracteis superioribus parvis linearibus patentibus; hypanthium obconicum vix 2 mm. longum dense pilosum; calyx 5-partitus, laciniis lanceolato-oblongis c. 1 cm. longis obtusis et apiculatis vel interdum acutis extus dense tomentosis et pilosis, intus sericeis; corolla alba extus dense albido-tomentosa et adpresso-pilosa, tubo lato 1 cm. longo campanulato intus supra basin dense piloso, lobis 5 adscendentibus rotundato-ovatis tubo subaequilongis intus glabris obtusis; stamina 5 valde inaequalia, filamentis gracilibus glabris, antheris linearibus 4 mm. longis inclusis.—Venezuela: Savanna of Atures, very common, October, 1887, *M. Gaillard 204* (herb. Paris, type).

So far as the specimens show, the leaves are opposite, although in other species of the genus they are verticillate. *Henriquezia aturensis* is nearest *H. Jenmani* Schum., of British Guiana. In the latter the leaves are glabrous on the upper surface, and the corolla is 5 cm. long. The corolla of the Venezuelan plant appears to be symmetrical, rather than asymmetric.

Henriquezia Jenmani Schum. is listed for Venezuela by Knuth, Init. Fl. Venez. 661. 1928, but there is no indication that this species has been collected very near the Venezuelan boundary.

Henriquezia nitida Spruce ex Benth. Trans. Linn. Soc. 22: 297. *pl. 54.* 1859; Schum. in Mart. Fl. Bras. 6^6: 134. 1889.

Type from the banks of the Río Casiquiare, *Spruce 3690.*

A tree 10 m. high, the branchlets ferruginous-tomentulose; leaves ternate, short-petiolate, thick-coriaceous, the blades oblong, 11–22 cm. long, obtuse, acute at the base, glabrous; inflorescence terminal, the flowers pedicellate, the rachis tomentose; calyx 13 mm. long, the lobes ovate, acuminate; corolla 3.5–4 cm. long, villous, red-spotted within.

Henriquezia oblonga Spruce ex Benth. Trans. Linn. Soc. 22: 297. 1859.

Type from the banks of the Río Atabapo near the mouth of the Río Casiquiare, *Spruce 3702*. Region of Javita, November, 1845, *Vargas* (W).

A tree 6 meters high, the branchlets glabrous; leaves short-petiolate, oblong, 12–14 cm. long, 4–4.5 cm. wide, obtuse or acutish, glabrous, shining above, paler beneath; capsule suborbicular, 7–8 cm. in diameter.

Henriquezia obovata Spruce ex Benth. Trans. Linn. Soc. 22: 296. 1859.

Type from the forests of the Río Negro above the mouth of the Río Casiquiare, *Spruce*.

A tree 13–20 meters high, the branchlets ferruginous-tomentulose, soon glabrate; stipules 1 cm. long, lanceolate, caducous; leaves petiolate, quaternate, the blades obovate-oblong or oblong, 13–15 cm. long, obtuse or retuse, acute at the base or truncate, glabrous; capsules semiorbicular or transverse-oblong, 6–7 cm. long, 10–11 cm. wide, complanate.

13. PLATYCARPUM H. & B.

Platycarpum orinocense H. & B. Pl. Aequin. 2: 81. *pl. 104*. 1809. *Sickingia orinocensis* Spreng. Syst. Veg. 2: 622. 1825.

Type collected along the Orinoco near Atures, *Humboldt & Bonpland*.

A tree 7.5–12 meters high with dense crown and white wood; branchlets ferruginous-tomentose; leaves short-petiolate, thickish, the blades obovate-oblong, 12.5–15 cm. long, obtuse, cuneate at the base, reticulate-veined, tomentose, whitish beneath; panicles terminal, branched; calyx lobes lanceolate, ferruginous-tomentose outside; corolla pale pink, villous outside, the tube short, the 5 lobes oval, obtuse; capsule didymous, compressed, 2-celled; seeds 2 in each cell, lenticular, winged.

This species, the only one of the genus, is distinguished from *Henriquezia* only by the fact that the calyx is persistent rather than circumscissile, as in that group. This difference, if it really does exist, is a trivial one, and whoever is familiar with the family will be inclined to doubt that such a difference really does exist between two groups otherwise so much alike. The writer has seen no specimens of *Platycarpum*, and it is only on that account that he hesitates to unite this genus with *Henriquezia*, as probably must be done sooner or later. The generic name *Platycarpum* is, of course, the older.

14. POGONOPUS Klotzsch

Pogonopus speciosus (Jacq.) Schum. in Mart. Fl. Bras. 6[6]: 265. 1889. *Macrocnemum speciosum* Jacq. Hort. Schoenbr. 1: 19. 1797. *P. Ottonis* Klotzsch, Monatsb. Akad. Berlin 501. 1853. *Howardia caracasensis* Wedd. Ann. Sci. Nat. IV. 1: 71. 1854. *P. caracasensis* Nichols. Dict. Gard. 3: 175. 1886.

Type of *P. Ottonis* from Venezuela, *Otto 901*. La Guaira, *Robinson & Lyon*, July 11, 1900 (W). Near Zigzag, Distrito Federal, *E. Pittier 58* (G, Y). Caracas, November, 1916, *Rose* (W). Without locality, *Fendler 584* (M). Caracas to La Guaira, *Pittier 11672* (Y). Petare, *Pittier 9799* (P). Colombia and Central America.

A shrub or tree 2–8 meters high, the trunk sometimes 30 cm. in diameter; leaves short-petiolate, the blades obovate or oval-obovate, 10–20 cm. long, abruptly acuminate, thin, sparsely or densely puberulent beneath; cymes forming a terminal panicle; one calyx lobe in some of the flowers expanded into a rounded-ovate, red or pink limb 1–5 cm. long; corolla tubular, pink; anthers purple; capsule 5–7 mm. long.

A showy and exceedingly handsome tree when in full flower.

15. CHIMARRHIS Jacq.

Chimarrhis cymosa Jacq. Sel. Stirp. 61. 1763.

Lower Orinoco, *Rusby & Squires 126* (F, W, Y). Also in the West Indies.

A tree, sometimes 25 meters high, the branchlets glabrous; stipules triangular-lanceolate, 2–4 cm. long, acuminate or attenuate; leaves petiolate, the blades obovate or oval-obovate, 5–30 cm. long, obtuse or acutish, acute to attenuate at the base and often decurrent, glabrous or sometimes short-pilose beneath; flowers in axillary long-pedunculate cymes 6–18 cm. broad, the branches rusty-puberulent, the bracts minute or rarely foliaceous, the pedicels 1–2 mm. long; calyx minutely denticulate; corolla white, glabrous outside, 4–6 mm. long, the tube much shorter than the oblong obtuse lobes; stamens exserted; capsule 2–5 mm. long; seeds numerous, minute, reticulate, sometimes produced at the angles.

Chimarrhis Pittieri Standl. Field Mus. Bot. 8: 53. 1930.

Type collected by *Pittier, No. 11954*, without locality (W, type; photo. in F; Y). Quebrada de los Hermanos, near Macuto, Quebrada del Río de la Guaira, *Birschel* (K).

A large tree, the young branchlets puberulent or glabrate; stipules deciduous, appressed-pilose; leaves short-petiolate, the blades oblong-obovate or broadly obovate, 14–32 cm. long, abruptly short-acuminate, gradually narrowed toward the base, or sometimes abruptly contracted and decurrent, glabrous above, beneath minutely strigillose; inflorescences terminal and axillary, densely many-flowered, leafy-bracted at the base, the branchlets densely strigillose,

the flowers very densely cymose-glomerate, sessile or very shortly pedicellate; capsule broadly obovoid, 3.5–4 mm. long, densely strigillose; calyx cupular, 1.5 mm. long, very shallowly lobate.

According to Birschel, the leaves are sometimes 30–45 cm. long. Pittier reports the vernacular name as "lengua de vaca," probably an allusion to the form of the leaves.

In *C. cymosa* there are tufts of hairs on the lower leaf surface in the axils of the veins; in *C. Pittieri* these are wanting.

Portlandia acuminata Willd. ex R. & S. Syst. Veg. 5: 23. 1819.—Type collected in Venezuela ("Caracas") by Bredemeyer. The only description consists of the words "leaves ovate acuminate." The identification of the plant concerned, without reference to the type in the Willdenow Herbarium, is, therefore, impossible. It is not unlikely that the plant is *Coutarea hexandra.*

16. TRESANTHERA Karst.

Tresanthera condamineoides Karst. Fl. Columb. 1: 37. *pl. 19.* 1858.

Type collected near Campanero, vicinity of Puerto Cabello, in hot wet forests at an elevation of 100–200 meters, *Karsten.* Near Colonia Tovar, *Fendler 2366* (G). Also in Tobago.

A glabrous tree 15–20 meters high, the trunk 30 cm. in diameter; stipules longer than the petiole, lanceolate, acuminate; leaves membranaceous, petiolate, the blades obovate-lanceolate, about 60 cm. long and 23 cm. wide, short-acuminate, narrowed to the base; inflorescence terminal, paniculate, sometimes almost 1 meter long, the flowers pedicellate, 2.5–3 cm. long; calyx 5-crenate; corolla campanulate, coriaceous, orange-red, the lobes triangular, recurved; capsule woody, ellipsoid, 2 cm. long.

17. WARSCEWICZIA Klotzsch

Warscewiczia coccinea (Vahl) Klotzsch, Monatsb. Akad. Berlin 1853: 497. 1853. *Macrocnemum coccineum* Vahl, Symb. Bot. 2: 38. 1791.

Carache Bridge, Trujillo, *Pittier 13124* (F). Panama; widely distributed in South America.

A shrub or small tree; leaves large, petiolate, the blades obovate or obovate-oblong, acute or short-acuminate, pubescent or glabrate beneath; flowers in cymes, these forming a long narrow inflorescence; one of the calyx lobes in some of the flowers expanded into a red, oblong or elliptic limb 3.5–7 cm. long; corolla yellow, short-funnelform, 5–8 mm. long, strigillose; capsule subglobose, 4–5 mm. long, the numerous seeds minute and angled.

The plant is an exceedingly showy and ornamental one during the flowering season.

18. GLEASONIA, gen. nov.

Arbores, ramulis crassis hirsutis; stipulae intrapetiolares persistentes magnae profunde bilobae; folia opposita breviter petiolata crasse coriacea oblonga vel elliptico-oblonga; flores magni speciosi rosei in cymas terminales pedunculatas multifloras dispositi sessiles vel pedicellati bracteolati; hypanthium hemisphaericum dense hirsutum; calyx 5-partitus, laciniis subaequalibus maximis ligulato-spathulatis elongatis coloratis apice rotundatis; corolla infundibuliformis magna rosea extus dense hirsuta et tomentosa, tubo recto intus dense piloso, limbi lobis 5 late ovatis obtusis intus dense pilosis imbricatis, 1 vel 2 exterioribus; stamina 5 basi faucis corollae inserta subaequalia inclusa, filamentis brevissimis glabris, antheris linearibus dorsifixis obtusis; discus depresso-annularis; ovarium 2-loculare; stylus crassus adpresso-pilosus, ramis 2 oblongis obtusis; ovula in loculis numerosa, placentis septo adnatis dense conferta; fructus ut videtur capsularis, non visus.

Type species, *Gleasonia duidana* Standl.

Gleasonia duidana Standl., sp. nov.—Ramuli subteretes; stipulae ferrugineae adpresso-hirsutae; folia magna apice obtusa vel subrotundata et apiculata, basi obtusa vel acutiuscula, supra glabra, subtus hispidula vel glabrata; cymae repetite ramosae, ramis dense hirsutis, bracteis lanceolatis vel oblongis in sicco ferrugineis hirsutis vel hispidulis.

A tree 7.5 meters high, the branchlets stout, subterete, fuscous-ferruginous, densely fulvous-hirsute; stipules intrapetiolar, persistent, thick, ferruginous, 2–2.5 cm. long, deeply bilobate, densely appressed-hirsute, the lobes broadly ovate, obtuse or acutish; leaves thick-coriaceous, short-petiolate, opposite, the stout petioles 1–2 cm. long, hirsute; leaf blades oblong or elliptic-oblong, 14.5–21 cm. long, 6.5–10 cm. wide, rounded or obtuse at the apex and short-apiculate, obtuse or acutish at the base, deep green and slightly lustrous on the upper surface, glabrous, the costa subimpressed, the ultimate veins forming a close pale reticulation, beneath paler and brownish, hispidulous and along the costa appressed-hirsute, the costa stout, elevated, the veins about 10 pairs, slender, prominent, oblique, ascending at an acute angle, subarcuate, anastomosing close to the subrevolute margin, the veinlets scarcely prominulous, closely reticulate; inflorescence terminal, cymose, repeatedly branched, rather laxly many-flowered, pedunculate, 6–15 cm. long, 10–26 cm. wide, the stout hirsute peduncle 2.5–6 cm. long, the branches ascending, densely fulvous-hirsute, the bracts 2–3 cm. long, linear to ovate-lanceolate, persistent, inserted at the base or often above the base of the branches, hirsute or hispidulous, long-acuminate, sometimes shortly 3-lobate at the apex; flowers sessile in the forks of the branches

or short-pedicellate, more or less secund, the bractlets linear or linear-lanceolate and much elongate; hypanthium hemispheric, 4–5 mm. long, densely fulvous-hirsute, 5-angled; calyx 5-parted, the segments liguliform-spatulate, pinkish white, subequal, 5–5.5 cm. long, 5–12 mm. wide, broadly rounded at the apex, tapering gradually to the base, appressed-hirsute and puberulent, rather conspicuously veined; corolla funnelform, pink, densely hirsute and tomentose outside, the tube 3 cm. long, rapidly dilated upward and in the throat 2 cm. wide, densely pilose within, the 5 lobes imbricate in bud, broadly ovate, 1.5 cm. long and nearly as wide at the base, obtuse, densely pilose and puberulent within; stamens inserted in the base of the corolla throat, the filaments 2 mm. long, glabrous, the anthers linear, obtuse, 5 mm. long, dorsifixed, included; disk depressed-annular; style very stout, included, 10 mm. long, densely appressed-pilose, the 2 branches oblong, obtuse, 4.5 mm. long; ovary 2-celled, the ovules very numerous; fruit probably capsular, not seen.—Venezuela: Mount Duida, The Valley, alt. 1,500 meters, *G. H. H. Tate 467* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Central Camp, Mount Duida, 1,440 meters, *Tate 1026* (Y).

When growing, this must be an exceedingly showy and handsome plant. The form of the calyx lobes and the general appearance of the inflorescence is strongly suggestive of the genus *Triplaris*, which contains some of the most gorgeous of tropical American trees.

Because of the absence of fruit, and uncertainty whether the seeds are winged or not, there is some question as to the tribal position of the tree, but it is probable that it is referable to the *Rondeletieae*, and allied with *Pallasia* and *Pteridocalyx*, both of which are natives of British Guiana. However, it is conspicuously distinct from both these genera, in which only one or two of the calyx lobes are enlarged and colored. In *Gleasonia* all the calyx lobes are about equally developed, and all are brightly colored. Such a calyx is not found in any other American representative of the family Rubiaceae.

The new genus is named for Dr. H. A. Gleason, and it is felt that the specific name, relating to the mountain upon which this remarkable tree grows, is an appropriate one, since, after the publication of the surprising number of new species discovered by Mr. Tate upon this isolated peak, Dr. Gleason's name always will be associated prominently with it.

19. SICKINGIA Willd.

For a key to the species occurring in Venezuela see Pittier, Bol. Mus. Com. Venez. 1: 72. 1926.

Sickingia erythroxylon Willd. Neue Schrift. Ges. Naturf. Freund. Berlin 3: 445. 1801.

Type collected near Caracas, *Bredemeyer* (photo. in F). Caruao, in forest, *Pittier 11933* (Y).

A tree 12 meters high or less, the trunk 15–30 cm. in diameter; branchlets glabrous; leaves short-petiolate, the blades rounded-rhombic or broadly obovate, as much as 35 cm. long and 25 cm. wide, coriaceous, obtusely acuminate, rounded at the base, pilose above on the veins, ferruginous-subtomentose beneath; inflorescence paniculate, shorter than the leaves, the branches ferruginous-tomentose; calyx 1 mm. long, the lobes acute or obtuse; corolla 6 mm. long, puberulent, the lobes very short, obtuse; capsules ovoid, 2.5 cm. long.

"Paraguatán," "aguatire," "aguacatire," "palo cucharo." For an account of the tree see Pittier, Pl. Usual. Venez. 330. 1926.

Sickingia Klugei Standl. Trop. Woods 22: 10. 1930. *Calderonia Klugei* Standl. Journ. Washington Acad. Sci. 15: 6. 1924. *S. parvifolia* Pittier, Bol. Mus. Com. Venez. 1: 71. 1926.

Barquisimeto, Lara, *Saer 24* (W, type collection of *S. parvifolia*). Bosques de Chirgua, Lara, *Saer 512* (F). Also in Panama.

A small tree, the branchlets glabrate; stipules lanceolate, deciduous; leaves petiolate, subcoriaceous, the blades broadly ovate or rounded, 4–6 cm. long, 3–4 cm. wide, subobtuse, glabrous above, pilose beneath on the veins; panicles 3–4 cm. long, many-flowered, the branches ferruginous-pilose, the flowers pedicellate; calyx 1 mm. long, obscurely lobulate; corolla 6.5 mm. long, reddish, the 4 lobes semiorbicular; capsule depressed-globose, glabrous, brown, 2 cm. long.

Sickingia longifolia Willd. Neue Schrift. Ges. Naturf. Freund. Berlin 3: 445. 1801. *Chimarrhis longifolia* Baill. Adansonia 12: 302. 1879.

Type collected near Caracas, *Bredemeyer* (photo. in F).

A tree with glabrous branchlets; stipules 5 mm. long, broadly triangular, acute; leaves petiolate, herbaceous, the blades obovate-oblong, 25–42 cm. long, 12–15 cm. wide, acute, repand-sinuate, long-attenuate to the base, glabrous but puberulent in the axils of the veins; inflorescences supra-axillary, paniculate, much shorter than the leaves, the branches ferruginous-pubescent; calyx 1 mm. long, lobed nearly to the base, the lobes triangular, ciliate; corolla 3–4 mm. long, the 4 lobes minute, triangular, acute.

Sickingia tinctoria (HBK.) Schum. in Mart. Fl. Bras. 6^6: 228. 1889. *Macrocnemum tinctorium* HBK. Nov. Gen. & Sp. 3: 399. 1820. *Condaminea tinctoria* DC. Prodr. 4: 402. 1830.

Type collected between Encaramada and Carichana, Misiones del Orinoco, *Humboldt & Bonpland*. Also in Amazonian Brazil.

A shrub or tree as much as 6 meters high, the branchlets ferruginous-tomentose; stipules 10–12 mm. long, oblong-subulate; leaves short-petiolate, herbaceous or subcoriaceous, the blades oblong, 8–13

cm. long, short-acuminate, acute to cordate at the base, glabrous above, pilose beneath on the veins; inflorescence terminal, sessile or short-pedunculate, the flowers subsessile; calyx 4 mm. long, the 5 lobes ovate or ovate-oblong, acute or obtuse; corolla 7–8 mm. long, the lobes very short, rounded, puberulent outside.

"Paraguatán." Humboldt and Bonpland report that formerly, at least, a red dye was obtained from the bark.

20. RONDELETIA L.

Rondeletia capitata Benth. in Hook. Journ. Bot. 3: 217. 1841.

Type from Mount Roraima, *Schomburgk 457*.

Branches hirsute; stipules linear-subulate, longer than the petiole; leaves very shortly petiolate, the blades ovate, 2–3 cm. long, subobtuse, rounded at the base, hirsute; inflorescences axillary, cymose-capitate, shorter than the leaves; flowers 4-parted; calyx lobes linear, unequal; corolla hirtous, 8 mm. long, the lobes half as long as the tube.

Rondeletia cumanensis HBK. Nov. Gen. & Sp. 3: 394. 1820.

Type from Cumanacoa, *Humboldt & Bonpland* (photo. in F).

A shrub or small tree 4 meters high, the branches glabrous; stipules ovate, acuminate; leaves subsessile, oblong, about 7 cm. long, acuminate, cuneate at the base, subcoriaceous, glabrous; panicles terminal, sessile, 5 cm. long, pubescent-sericeous, the flowers subsessile or short-pedicellate, 16–18 mm. long; calyx sericeous, the 5 lobes ovate-oblong, acute; corolla white, sericeous, the 5 lobes rounded, pubescent within, one-fourth as long as the tube; capsule subglobose, pubescent-lanate.

Rondeletia eriocarpa Karst. Linnaea 30: 147. 1859–60; Fl. Columb. 2: 125. *pl. 166a*. 1862–69.

Type from Cumaná, *Karsten*.

A shrub; leaves membranaceous, short-petiolate, the blades obovate-lanceolate, 15 cm. long, 5 cm. wide, glabrous above, pilosulous beneath; stipules triangular from a broad base, acuminate; inflorescences terminal and axillary, cymose, the pedicels 3–4 mm. long; calyx teeth 5–6, lanceolate; corolla pinkish white, sericeous-tomentose, the tube 1 cm. long, the lobes oval; capsule tomentose-sericeous.

Rondeletia erythroneura Karst. Linnaea 30: 148. 1859–60; Fl. Columb. 2: 126. *pl. 166b*. 1862–69.

Type from the Province of Cumaná, *Karsten*.

A shrub 1.5–2.5 meters high; stipules 6 mm. long, acute; leaves opposite or ternate, petiolate, membranaceous, the blades ovate-elliptic or lanceolate, 15 cm. long and 8 cm. wide, glabrous above, appressed-pilose beneath on the veins; inflorescence terminal, cymose,

the flowers pale pink, fragrant, short-pedicellate; calyx lobes 5–6, linear, acute, 2–3 times as long as the hypanthium; corolla sparsely pilose, the tube 1 cm. long, the throat naked, the lobes oval-rounded; capsule globose.

Rondeletia inconstans Standl. Field Mus. Bot. 7: 31. 1930. *R. caracasana* Standl. ex Knuth, Init. Fl. Venez. 659. 1928, nomen.

Upper Cotiza, near Caracas, in light forest, 1,350 meters, *Pittier 9837* (G, W), *7403* (W), *7192* (W). Between Maracay and Choroni, 1,200 meters, *Fendler 1994* (G, K, M). Los Castillitos, above Caracas, 1,300–1,500 meters, *Pittier 9181* (G, W, Y). Caracas, 900–1,200 meters, *A. G. Bailey 31* (K). Middle Cotiza, near Caracas, in savannas, 1,000–1,400 meters, *Pittier 8045* (W). Ojo de Agua, 1,500 meters, *Eggers 13419* (W). Cotiza, 1,200 meters, *Jahn* (W). Without locality, *Funck & Schlim 160* (L). Prov. Mérida, *Linden 692* (L). Also in Colombia.

A shrub or small tree 2–4.5 meters high; stipules 6–20 mm. long, narrowly oblong, obtuse or rounded at the apex, sometimes cuspidate; leaves petiolate, thick-membranaceous, the blades ovate to oblong-elliptic, 8–20 cm. long, abruptly acuminate, at the base abruptly acute or acuminate, rarely rounded, at first cinereous-tomentose, soon glabrate; panicles terminal, sessile or pedunculate, the flowers 4-parted, sessile or pedicellate, the branches tomentose or glabrate; calyx lobes oblong or linear-lanceolate, 1.5–3 mm. long; corolla pink, white-tomentose, the tube 8–14 mm. long, the lobes rounded, 2 mm. long; capsule subglobose, 4–5 mm. long.

Rondeletia pubescens HBK. Nov. Gen. & Sp. 3: 396. *pl. 291.* 1820. *Rondeletia mollis* Blake ex Knuth, Init. Fl. Venez. 660. 1928, nomen.

Lower Catuche Wood, above Caracas, 1,000–1,200 meters, *Pittier 7588* (W). Las Ajuntas, *Eggers 13362* (W). Valencia, *Warming 168* (W). Las Mostazas, Miranda, 960 meters, *Allart 212* (W, Y). Cerro Bordo, Lara, *Saer 292* (W, Y). Valencia, in savannas, 400–800 meters, *Pittier 8746* (W, Y). Hacienda de Cura, Carabobo, 480–1,200 meters, *Pittier 8222* (W). Viscaina, *Fendler 585* (G, M). Los Castillitos, above Caracas, 1,300–1,500 meters, *Pittier 9172* (G, W, Y). La Trinidad de Maracay, 440 meters, *Pittier 5769* (W, Y). Quebrada de Turumo, Miranda, *Pittier 11260* (W). Caracas, *Bailey 961* (W). Colonia Tovar, 1,800–2,000 meters, *Allart 402* (W, Y). Also in Colombia.

A shrub or small tree, 2.5–5 m. high, the trunk sometimes 15 cm. in diameter; stipules lance-subulate, usually shorter than the petioles; leaf blades oblong, obtuse or acutish, glabrate above, densely grayish-pubescent beneath; flowers usually 5-parted, yellowish white, pink, or purplish, in large leafy panicles; hypanthium whitish-puberulent; calyx lobes lanceolate or oblong, acute or obtuse; corolla tube 5 mm. long.

Rondeletia Purdiei Hook. f. in Curtis' Bot. Mag. *pl. 5669.* 1867.

Viscaina, 900 m., *Fendler 586* (G). Valencia, 400–800 m., *Pittier 8895* (G, W), *8718* (G, W). In savannas near El Tinaco, Cojedes, *Pittier 11995* (W, Y). Cumaná, *Funck 720* (L), *238* (L). Sabanas de Cujicito, 300 m., *Saer 541* (F). Also in Colombia.

A shrub or small tree; stipules broadly triangular, subulate-acuminate; leaves short-petiolate, the blades oblong-obovate to ovate-oblong, usually obtuse, attenuate to acuminate at the base, nearly glabrous; flowers white or pink, fragrant, in dense rounded terminal panicles; hypanthium appressed-pubescent; calyx lobes ovate or elliptic, obtuse or acute; corolla tube 8–9 mm. long, sparsely appressed-pubescent.

"Cruceta de sabana," "canillo de venado."

Rondeletia rupicola Schum. in Mart. Fl. Bras. 6[6]: 222. 1889. *Sipanea rupicola* Spruce ex Schum. loc. cit., in syn.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3392* (G; photo. in F).

Branches ferruginous-strigose; stipules 4 mm. long, subulate or filiform; leaves short-petiolate, the blades lanceolate, 2.5–7 cm. long, 1–1.8 cm. wide, acuminate, long-acuminate to the base and decurrent, sericeous-strigose; inflorescence pedunculate, several times dichotomous, the flowers short-pedicellate; hypanthium grayish-sericeous or strigose; calyx lobes subulate, unequal, 1–1.5 mm. long; corolla 14 mm. long, the 4 lobes oblong, hirsute outside, glabrous within.

21. SIPANEA Aubl.

Sipanea biflora (L. f.) C. & S. Linnaea 4: 168. 1829. *Virecta biflora* L. f. Suppl. Pl. 134. 1781.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 252. 1889) from Maipures, *Spruce 3620.* Also in the Guianas and Brazil.

A perennial herb, the weak stems rooting at the base, sparsely puberulent; leaves petiolate, the blades ovate to elliptic, 1.2–4.5 cm. long, acute, acuminate to the petiole, glabrous above, appressed-pilose beneath; inflorescences chiefly axillary, 1–3-flowered; calyx lobes subulate, glabrous, 3–4 mm. long; corolla pink, 1.5 cm. long, glabrous or minutely puberulent, the lobes oblong, obtuse, half as long as the tube; capsule subglobose, 4 mm. long; minute seeds red.

Sipanea galioides Wernham, Journ. Bot. 55: 172. 1917. *S. pratensis* Oliver, Trans. Linn. Soc. II. 2: 276. 1886, non Aubl.

Type from Spelemoota, Arapoo River, Roraima, British Guiana, *Im Thurn 29.* Mount Roraima, *Tate 288* (F).

A slender herb, the stems appressed-pilose; leaves linear or linear-lanceolate, 2–3 cm. long, 4–6 mm. wide, sessile, obtuse, hirtellous; stipules triangular, acuminate; flowers 1–3 in terminal capitate

cymules; calyx lobes linear, 6 mm. long; corolla sericeous, the tube 18 mm. long or more, the lobes broadly ovate, acute, 9 mm. long, glabrous.

Sipanea glomerata HBK. Nov. Gen. & Sp. 3: 398. 1820.

Type collected near Atures on the Orinoco, *Humboldt & Bonpland* (photo. in F). Schumann (in Mart. Fl. Bras. 6^6: 249. 1889) reports also *Spruce 3665* from Maipures.

A perennial herb, the stems sericeous; leaves short-petiolate, the blades lanceolate, long-acuminate, 4–10 cm. long, 1–2 cm. wide, usually complicate, sericeous; inflorescence terminal, subcapitate; calyx lobes subulate, 8–9 mm. long, sericeous outside; corolla coriaceous, yellow, 20–22 mm. long, sericeous, the lobes half as long as the tube, ovate, acute.

Sipanea pratensis Aubl. Pl. Guian. 1: 147. *pl. 56*. 1775. *S. dichotoma* HBK. Nov. Gen. & Sp. 3: 397. 1820.

Type of *S. dichotoma* collected near Atures, *Humboldt & Bonpland*. Los Teques, Miranda, 1,400 m., *Pittier 7507* (W). Colonia Tovar, 900 m., *Fendler 798* (G). Also in the Guianas and Trinidad.

An erect or ascending perennial, 50 cm. high or less, the branches sericeous; leaves lanceolate or ovate-lanceolate, 3–7 cm. long, sparsely or densely sericeous; flowers terminal, sessile or subsessile; calyx lobes 6–8 mm. long; corolla pink, the tube 9–13 mm. long, densely yellow-barbate in the throat, sparsely sericeous outside; capsule ovoid or oblong, 7–8 mm. long, costate, the seeds brown, pitted.

Sipanea Spraguei Wernham, Journ. Bot. 55: 172. 1917. *S. acinifolia* Sprague, Trans. Bot. Soc. Edinb. 22: 433. 1904, in part.

Type collected in savanna, Caicara, Río Orinoco, *Sprague 7*.

Stems hirtellous above; leaves subsessile, elliptic-lanceolate, 5–8 mm. long, subobtuse, sparsely hirtellous; flowers terminal, sessile, solitary; calyx lobes linear, 3.5 mm. long; corolla glabrous, the tube 12 mm. long, the lobes broadly obovate, rounded at the apex, 8.5 mm. long.

22. LIMNOSIPANEA Hook. f.

Limnosipanea Schomburgkii Hook. f. Icon. Pl. *pl. 1040*. 1868.

Type collected near Roraima, *Schomburgk 464*. Also in Brazil.

A slender annual, the simple stems 40 cm. long or less, appressed-pilose; leaves opposite, sessile, ovate-lanceolate or oblong, 5–25 mm. long, acute, rounded at the base, sparsely pilose; flowers terminal, sessile, the lateral ones pedicellate; calyx lobes 5, lanceolate, acuminate, 3 mm. long; corolla 6–7 mm. long, the lobes linear-lanceolate, half as long as the tube; capsule elliptic, hispid, 4 mm. long, the numerous seeds minute, brown, foveolate.

23. ELAEAGIA Wedd.

Elaeagia Karstenii Standl. Field Mus. Bot. 8: 50. 1930.

Near Colonia Tovar, *Fendler 594* (G, type; M, Y). Perhaps also in Colombia.

A tree, the quadrangular branchlets densely hirtellous or glabrate; stipules deciduous, oblong, obtuse or rounded at the apex, 1 cm. wide; leaves short-petiolate, coriaceous, the blades broadly elliptic or obovate-elliptic, 13–25 cm. long, 7–15 cm. wide, rounded and short-acuminate at the apex, puberulent or glabrate above, pale beneath, pilosulous or glabrate; inflorescence terminal, broadly paniculate, about 20 cm. long, laxly many-flowered, densely puberulent or pilosulous, the flowers glomerate, sessile or short-pedicellate; calyx glabrous, 1.2 mm. long, shortly 5-lobed, the lobes rounded, apiculate; corolla 3–3.5 mm. long, densely barbate in the throat, 5-fid almost to the base, the lobes obtuse; stamens exserted; capsule globose, 2 mm. long.

24. DEPPEA Schlecht. & Cham.

Deppea venezuelensis Standl. Field Mus. Bot. 8: 52. 1930.

Without locality, *Funck 793* (K, type; photo. in herb. Field Mus.).

Branchlets sericeous; stipules narrowly triangular, 1–1.5 cm. long, long-attenuate, persistent; leaves petiolate, membranaceous, the blades elliptic-oblong or oblanceolate-oblong, 16–21 cm. long, 6–9 cm. wide, acuminate, narrowed to the base, pilose above along the veins with subappressed hairs, sparsely sericeous beneath; inflorescences axillary, fasciculate, cymose, short-pedunculate, laxly few-flowered, the pedicels 3–5 mm. long, sericeous; calyx 5-fid almost to the base, the lobes spatulate or linear-oblong, 5–6 mm. long, acute, green; capsule semiglobose, 2–3 mm. long, conspicuously costate.

As stated when this species was published, it scarcely belongs to the genus *Deppea*, but it has been impossible to find any more satisfactory place for it.

25. CHALEPOPHYLLUM Hook. f.

Chalepophyllum latifolium, sp. nov.—Frutex, ramulis densissime foliatis, internodiis glabris; stipulae in vaginam brevem glabram connatae, lobis triangulari-subulatis tantum ad basin albido-hispidulis; folia sessilia crasse coriacea ovalia apice rotundata vel obtusissima, basi rotundata, glabra; flores axillares solitarii breviter pedicellati; hypanthium dense hispidulum, calycis laciniis plus minusve inaequalibus lanceolato-linearibus ciliatis; corolla speciosa magna, tubo lobis 2–6-plo longioribus; capsula subglobosa dense hispidula.

A shrub, the older branches stout, subterete, the young branchlets more or less tetragonous, ferruginous-brownish, glabrous, the internodes very short; stipules connate into a glabrous sheath 2–2.5 mm. long, the free portion triangular-subulate, 3–4 mm. long, erect,

densely whitish-hispidulous near the base, persistent; leaves opposite, sessile, thick-coriaceous, oval, 1.5–3.5 cm. long, 8–16 mm. wide, broadly rounded to obtuse at the apex, rounded at the base, glabrous, the margins plane, the venation except the costa obsolete, deep green and lustrous on the upper surface, pale beneath and minutely pale-puncticulate; flowers axillary, solitary, on stout pedicels 2–3 mm. long; bracts similar to leaves but only 7 mm. long, or sometimes oblong-linear; hypanthium densely hispidulous; calyx 5-parted, the segments greenish, linear-lanceolate, 10–12 mm. long, slightly unequal, long-attenuate, ciliate but otherwise glabrous, erect, persistent; corolla glabrous outside, the very slender tube 4–9 cm. long, 2–2.5 mm. thick, only slightly dilated in the throat and there as much as 4.5 mm. wide, the 5 lobes oblong or elliptic-oblong, 1.5–3 cm. long, 6–8 mm. wide, acute or acutish, glabrous within, spreading; stamens included; style short-exserted, minutely papillose; capsule globose or oval-globose, 8–12 mm. long, densely hispidulous with stiff whitish hairs, rounded at the base and apex; seeds numerous, about 2 mm. long, dark brown, very irregular, acutely angled, deeply pitted.—Venezuela: Mount Duida, on moist slopes of Savanna Hills, alt. 1,320 m., *G. H. H. Tate 730* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.).

It may be that this plant is only a variant of *C. Tatei*, but it differs so much in the size and shape of the leaves and in the form of the stipules that it seems fairly safe to describe it as distinct. Both these species must be handsome plants, because of their profusion of large flowers, which presumably are white, although the collectors of the various species of the genus have vouchsafed no information upon flower color. In all the three species described since the original one, the size of the corolla seems to be exceptionally variable for members of the Rubiaceae.

Chalepophyllum Tatei, sp. nov.—Frutex, ramulis crassis densissime foliatis; stipulae in vaginam profunde bilobam dense strigosam connatae persistentes; folia brevissime petiolata crasse coriacea; lamina elliptico-oblonga parva acuta glabra; flores speciosi axillares breviter pedicellati; hypanthium dense hispidulum, calycis laciniis subaequalibus lanceolato-linearibus erectis hispidulis; corollae tubus lobis 5-plo longior.

A shrub about 1 m. high, apparently densely branched, the branches stout, the older ones subterete, blackish, covered by the persistent stipules, the internodes very short; stipules persistent, 5–7 mm. long, connate halfway to the base, densely whitish-strigose, the lobes triangular-subulate, rigid, suberect; leaves almost sessile, opposite, the petiole scarcely more than 1 mm. long, glabrous; leaf blades thick-coriaceous, elliptic-oblong, 12–27 mm. long, 5–9 mm. wide, acute, cuneately acute at the base, glabrous, the margins revolute, deep green and more or less lustrous above, the venation obsolete, beneath pale, the costa somewhat prominent, the other

venation obsolete; flowers axillary, solitary, on stout pedicels as much as 4 mm. long; bracts linear, 8–9 mm. long, inserted at the base of the hypanthium, sparsely pilosulous; hypanthium obovoid, 5 mm. long, densely white-hispidulous; calyx lobes subequal, erect, lance-linear, about 1 cm. long and 1.5–2 mm. wide, long-attenuate to the acute apex, sparsely hispidulous; corolla glabrous outside, the very slender tube 6.5–11 cm. long, 2 mm. thick, very slightly dilated in the throat and 3 mm. wide, the 5 lobes spreading, oblong, acutish, ciliolate, 1.5–3 cm. long, 5–8 mm. wide, glabrous within; stamens included; style very shortly exserted, scaberulous.—Venezuela: Mount Duida, Summit of Peak No. 7, alt. 2,130 m., *G. H. H. Tate 623* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Slopes of Ridge 25, Mount Duida, 1,650–1,800 m., *Tate 427*. Mount Duida, without locality data, *Tate 1016*.

Of the genus *Chalepophyllum* two species have been published heretofore, the type, *C. guyanense* Hook. f., described from some uncertain locality of British Guiana, and *C. speciosum* N. E. Brown, obtained on Mount Roraima at an elevation of 2,680 meters. The original illustration of the type shows a plant with comparatively small flowers, and altogether different in general appearance from *C. Tatei*. The latter, however, evidently is closely related to *C. speciosum*, that species differing from *C. Tatei* in its more or less obovate, obtuse leaves and glabrous stipules. There is no doubt that *C. Tatei* is congeneric with *C. speciosum*, but there is considerable doubt in the writer's mind regarding their relationship to *C. guyanense*. Their status can not be resolved, however, without access to material of *C. guyanense*, and perhaps to better material than is afforded by the type specimen.

Chalepophyllum speciosum N. E. Brown, Trans. Linn. Soc. II. 6: 33. *pl. 5, f. 10–17*. 1901.

Type from the summit of Mount Roraima, at 2,580 m., *McConnell & Quelch 100, 305, 653*.

A stout glabrous shrub, the branches 4-angled; leaves mostly at the tips of the branches, subsessile, obovate, 3–5 cm. long, obtuse and bluntly apiculate, cuneate at the base, rigidly coriaceous, shining above; stipules persistent long after the leaves have fallen; flowers usually 2 on each shoot or sometimes only one, the pedicels 2–8 mm. long; calyx lobes 10–20 mm. long, 2–5 mm. wide, linear to oblong, acute, coriaceous; corolla 5-lobed, the tube 4–8 cm. long, about 3 mm. wide, the lobes 2.5–5 cm. long, linear-lanceolate or oblong, acute.

26. ARCYTOPHYLLUM Willd.

Arcytophyllum caracasanum (HBK.) Standl. Contr. U. S. Nat. Herb. 18: 126. 1916. *Hedyotis caracasana* HBK. Nov. Gen.

& Sp. 3: 393. 1820. *A. blaerioides* Willd. ex R. & S. Mant. 3: 5. 1827. *Rachicallis caracasana* DC. Prodr. 4: 434. 1830. *Pseudrachicallis caracasana* Karst. Fl. Columb. 2: 10. 1862. *Mallostoma caracasana* B. & H. Gen. Pl. 2: 60. 1873.

Type from Silla de Caracas at 1,600 m., *Humboldt & Bonpland.* Silla de Caracas, *Kuntze 1624* (W); at 2,000–2,600 m., *Pittier 8341* (W). Páramo de la Sal, Mérida, 3,200 m., *Jahn 527* (W). Páramo de Aricagua, Mérida, 3,200 m., *Jahn 1007* (G, W). Caracas, *Linden 134* (F, G). Pico de Naiguatá, Miranda, 2,400–2,750 m., *Pittier 6237* (W). Páramos de Misintá, Mérida, *Jahn 88* (W). Páramo de Timotes, Mérida, 3,500 m., *Jahn 629* (W). Without locality, *Funck & Schlim 1120* (L, P), *1277* (L), *887* (L). Mérida, *Engel* (L). Prov. Caracas, *Funck & Schlim 500* (P). Sierra Nevada de Mérida, 2,400–3,000 m., *Funck & Schlim 1617* (P); 2,700 m., *Funck & Schlim 1121* (P). Without locality, *Linden 409* (P). Cordillera de Mérida, *Doursey* (P). Also in Colombia.

A small erect glabrous shrub, corymbosely branched, densely leafy; leaves oblong, obtuse, muticous, very thick and hard, with revolute margins; stipules triangular-ovate, irregularly erose-dentate; flowers terminal, solitary, sessile; calyx lobes oblong-lanceolate; corolla purplish or reddish.

Funck & Schlim 1121 was listed by Knuth (Init. Fl. Venez. 659. 1928) as *Hedyotis nitida* HBK., a plant apparently unknown from Venezuela.

Hedyotis floribunda Karst. Linnaea 30: 146. 1859–60. *Pseudrachicallis floribunda* Karst. Fl. Columb. 2: 10. 1862.—Type from Páramo de Bocono, Trujillo, 2,700–3,600 m., *Karsten.* As suggested by Karsten, this probably is synonymous with *Arcytophyllum caracasanum.*

Arcytophyllum microphyllum (Willd.) Standl. Field Mus. Bot. 7: 207. 1931. *Houstonia microphylla* Willd. ex R. & S. Syst. Veg. 3: 527. 1819. *H. serpens* HBK. Nov. Gen. & Sp. 3: 390. *pl. 289.* 1820. *Anotis serpens* DC. Prodr. 4: 433. 1830.

Ciudad Real, *Linden 539* (K). Knuth (Init. Fl. Venez. 659. 1928) cites *Funck 1065* from Prov. Caracas. The species grows also in Ecuador.

Plants prostrate, with filiform branches; leaves rounded-ovate or elliptic-ovate, obtuse, glabrous, the margins scaberulous; flowers axillary, solitary, short-pedicellate; capsule broadly rounded, compressed; calyx lobes spatulate-lanceolate, acute.

Oldenlandia herbacea (L.) DC. is listed for Venezuela by Knuth, Init. Fl. Venez. 659. 1928. No specimens are cited, however, and I have seen none from Venezuela. Both this species and *O. corymbosa* L., common tropical weeds, are to be expected in the country.

27. DIDYMOCHLAMYS Hook. f.

Only one other species of the genus is known, a native of Colombia.

Didymochlamys Connellii N. E. Brown, Trans. Linn. Soc. II. 6: 34. *pl. 5, f. 1–9.* 1901.

Type from the Roraima Range at 1,050 m., *McConnell & Quelch 714.* Known also from Kaietur Falls in British Guiana.

A low herb, the simple stem 3.5–15 cm. long; leaves alternate, distichous, subsessile, the blades obliquely or subfalcately oblanceolate, 2.5–3.5 cm. long, acute at the apex or rounded, tapering to the oblique base, glabrous; peduncle terminal, 6 mm. long, bearing 2 suborbicular apiculate glabrous bracts 12 mm. long, the bracts enclosing 2 or more short-pedicellate flowers; calyx lobes about 2 mm. long, lanceolate, acute; corolla tube 12 mm. long, dilated above the middle then narrowed to the mouth, the lobes bilobate.

28. SCHRADERA Vahl

Schradera exotica (J. F. Gmel.) Standl. Field Mus. Bot. 4: 286. 1929. *Urceolaria exotica* J. F. Gmel. Syst. Nat. 2: 390. 1791. *S. capitata* Vahl, Eclog. Amer. 1: 35. 1796. *Uncariopsis suaveolens* Karst. Linnaea 30: 152. 1859–60; Fl. Columb. 181. *pl. 90.* 1858–61.

Type of *Uncariopsis suaveolens* from Cumbre de Valencia, near Puerto Cabello, in forests at 1,600 m., *Karsten.* West Indies and Brazil.

A scandent shrub, sometimes, at least, epiphytic, glabrous; stipules obovate, rounded at the apex, 1.5 cm. long; leaves petiolate, coriaceous, the blades oval to oblong, 6–10 cm. long, 2.5–5.5 cm. wide, rounded or obtuse at each end, lustrous above, paler beneath; flowers in dense heads, these mostly solitary, on stout peduncles 2.5–4 cm. long, the head surrounded by a truncate cuplike involucre; corolla white, the tube 7–17 mm. long, the 5–7 lobes equaling or longer than the tube.

I have seen no material of Karsten's species, but from the illustration and description it does not appear to differ from the West Indian plant.

29. GONZALAGUNIA R. & P.

Gonzalagunia panamensis (Cav.) Schum. in Mart. Fl. Bras. 6^6: 292. 1889. *Buena panamensis* Cav. Anal. Hist. Nat. 2: 279. 1800.

Perijá, Zulia, *Pittier 10908* (P, W, Y). Colombia to Mexico and Cuba.

A slender shrub or small tree, the branches often recurved, sometimes 4.5 m. high; leaves slender-petiolate, the blades lanceolate to ovate, appressed-pilose; calyx lobes short, deltoid, obtuse or acute; corolla white, 12–17 mm. long; fruit 4-coccous.

Gonzalagunia spicata (Lam.) Gómez, Anal. Hist. Nat. Madrid 23: 289. 1894. *Lygistum spicatum* Lam. Tabl. Encycl. 1: 286. 1791. *Coccocypselum spicatum* HBK. Nov. Gen. & Sp. 3: 406. 1820. *Gonzalea grisea* Wernham, Journ. Bot. 51: 218. 1913. *Duggena grisea* Standl. Contr. U. S. Nat. Herb. 18: 125. 1916.

Lower Orinoco, *Rusby & Squires 121* (F, W). El Valle, Margarita Island, *Miller & Johnston 217* (F, M, W). San Juan Mountain, Margarita Island, *Johnston 100* (F, W). Without locality, *Fendler 583* (M). Quebrada de las Comadres, Miranda, 800 m., *Allart 225* (W, Y). El Encanto, Miranda, 1,000 m., *Allart 151* (W). Puerto Cabello to San Felipe, Carabobo, 10–100 m., *Pittier 9127* (W). Puente de Turumo, Miranda, *Pittier 11915* (W, Y). Cristóbal Colón, *Broadway 314* (W), *556* (W). Without locality, *Geay* (P). El Vigía, *Mocquerys 1003* (P). Guianas, Brazil, and the West Indies.

A shrub, 4 m. high or less, with long slender branches; stipules 4–11 mm. long, long-subulate from a triangular base; leaves petiolate, the blades broadly ovate to lanceolate, 7–19 cm. long, long-acuminate, acute to rounded at the base, appressed-pilose or glabrate; inflorescence spikelike, 8–40 cm. long; calyx lobes linear to oblong, acute; corolla white, 10–15 mm. long; fruit dicoccous, 3–4 mm. broad, white to lavender or blue-purple.

In Knuth's enumeration of the flora of Venezuela this plant appears on page 664 under four generic and as many specific names! *Pittier 9127*, which he lists as *Duggena panamensis*, is *Gonzalagunia spicata*.

30. ISERTIA Schreb.

Isertia Haenkeana DC. Prodr. 4: 437. 1830.

Santa Ana River, Zulia, *Pittier 10903* (P, W, Y). Colombia and Central America.

A shrub 1–3.5 m. high; leaves opposite or ternate, short-petiolate, the blades obovate or oblong-obovate, 20–45 cm. long, green above, beneath densely short-pilose or glabrate; flowers orange-red and yellow, in large dense thyrsoid panicles; corolla 1.7–3.5 cm. long, puberulent or tomentulose; berries purplish, 5 mm. in diameter.

Like other species of the genus, this is an exceptionally showy and handsome plant when in blossom.

Isertia hypoleuca Benth. in Hook. Journ. Bot. 3: 220. 1841. *I. coccinea* Vahl, var. *hypoleuca* Schum. in Mart. Fl. Bras. 6^6: 286. 1889.

Reported by Schumann (loc. cit.) from the region of Roraima, *Schomburgk 281, 282, 674*. Also in Colombia, the Guianas, Brazil, and eastern Peru.

A shrub or small tree; leaves petiolate, the blades oblong or obovate-oblong, green above, densely white-tomentose beneath; calyx usually glabrous; corolla about 6 cm. long, sparsely tomentose, tubular, red.

Isertia parviflora Vahl, Eclog. Amer. 2: 28. 1798.

Banks of the Orinoco, *Spruce 3633* (K). Also in the Guianas and the West Indies.

A shrub or tree as much as 5.5 m. high; leaves short-petiolate, oblong or oblong-lanceolate, short-acuminate, coriaceous, glabrous above, puberulent beneath, 15–25 cm. long; stipules 1.5–2.5 cm. long; panicles 13–20 cm. long, dense and many-flowered; ovary 6-celled; corolla white, glabrous outside, 1.5 cm. long.

Isertia rosea Spruce ex Schum. in Mart. Fl. Bras. 6[6]: 284. 1889.

Reported by Schumann from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3174;* and near San Carlos on the Río Negro, *Spruce 2894.* San Carlos, Río Negro, Amazonas, open places, *Holt & Gehriger 335* (F). Also in French Guiana and Amazonian Brazil.

A shrub with glabrate branches; stipules glabrous; leaves petiolate, the blades oblong or obovate-oblong, 11–38 cm. long, obtuse-acuminate, cuneate at the base, glabrous; panicles 14–20 cm. long, dense and many-flowered; ovary 4-celled; corolla rose-purple, 4 cm. long, glabrous outside; fruit globose, glabrous, 6 mm. in diameter.

Isertia verrucosa (H. & B.) Standl. Field Mus. Bot. 8: 346. 1931. *Cassupa verrucosa* H. & B. Pl. Aequin. 1: 43. *pl. 12.* 1806.

Type collected near San Carlos on the Río Negro, *Humboldt & Bonpland.* Schumann (in Mart. Fl. Bras. 6[6]: 283. 1889) reports *Spruce 3041* from the same locality.

A tree 10–13 m. high; stipules 1.5–2.5 cm. long; leaves petiolate, the blades obovate-oblong, 18–39 cm. long, short-acuminate, cuneate at the base, glabrous above, grayish-tomentose beneath; panicles about 30 cm. long, dense and many-flowered; ovary 2-celled; corolla 5–5.5 cm. long, pale red, tomentulose; fruit globose, red.

31. COCCOCYPSELUM Sw.

Coccocypselum guianense (Aubl.) Schum. in Mart. Fl. Bras. 6[6]: 315. 1889. *Tontanea guianensis* Aubl. Pl. Guian. 108. 1775. *C. Tontanea* HBK. Nov. Gen. & Sp. 3: 406. 1820.

Reported by HBK., loc. cit., from the region of Caracas. Widely distributed in tropical America.

Prostrate and creeping, the stems pilose or hirsute with spreading hairs; leaf blades ovate or rounded-ovate, 2.5–7 cm. long, rounded to acutish at the apex, truncate to obtuse at the base, appressed-pilose on the upper surface, soft-pilose beneath; heads long-pedunculate, few-flowered; calyx lobes linear, acute, 3–4 mm. long; corolla blue, 7–10 mm. long; berries bright blue, 6–11 mm. in diameter.

Coccocypselum lanceolatum (R. & P.) Pers. Syn. Pl. 1: 132. 1805. *Condalia lanceolata* R. & P. Fl. Peruv. 1: 54. 1798. *Cocco-*

cypselum repens HBK. Nov. Gen. & Sp. 3: 405. 1820, non Sw. *Coccocypselum canescens* C. & S. Linnaea 4: 139. 1829.

Quirorá, Mérida, 1,800 m., *Jahn 693* (W). Ridge north of Caracas, 1,800 m., *Eggers 13185* (W). Catuche Wood, near Caracas, 1,400 m., *Pittier 7330* (W). Colonia Tovar, Aragua, 1,700–2,300 m., *Pittier 9299* (W). Near Tovar, Mérida, 1,500 m., *Pittier 12809* (W). Galipán, Distrito Federal, *Allart 173* (W, Y). Without locality, *Fendler 549* (M). Colonia Tovar, *Woronow 7191* (L). Tabay, 2,000 m., dry sunny places, *Gehriger 355* (F). Without locality, *Mocquerys 1070* (P). Widely distributed in South and Central America, chiefly at middle or higher elevations.

Branches densely pilose-sericeous; leaf blades oblong to ovate, acute or obtuse, densely appressed-pilose; flower heads long-pedunculate, very densely many-flowered; calyx lobes oblong or ovate, usually obtuse, 2–3 mm. long; corolla purplish blue, 5 mm. long; fruit bright blue, 5–7 mm. long.

32. TAMMSIA Karst.

The genus consists of a single species.

Tammsia anomala Karst. Fl. Columb. 1: 179. *pl. 89*. 1861.

Type collected in moist forests near Colonia Tovar at 1,700 m., *Karsten*. Near Colonia Tovar, *Fendler 582* (G, K, M, Y); *Moritz 905* (K); at 1,800–2,000 m., *Allart 394* (Y).

A tree 5–6 m. high with glabrous branchlets; stipules lanceolate from a broad base, acute, deciduous, equaling the petioles; leaves opposite or rarely ternate, petiolate, membranaceous, the blades lance-obovate, about 10–12 cm. long and 5 cm. wide, acute or short-acuminate, appressed-pilose, especially beneath, or glabrate, finely and closely striolate between the veins; flowers axillary, pedicellate, solitary or fasciculate; calyx large, usually 3-parted, the lobes triangular, valvate in bud, green; corolla large, the tube equaling the calyx, the limb 6-lobate, the lobes spreading, suborbicular; fruit a large berry.

33. EVOSMIA H. & B.

Evosmia caripensis H. & B. Pl. Aequin. 2: 165. *pl. 134*. 1809; HBK. Nov. Gen. & Sp. 3: 418. 1820.

Type collected near Caripe, *Humboldt & Bonpland*.

A tree 4.5–6 m. high, glabrous, the trunk 15–20 cm. in diameter, the bark smooth, the wood fragrant; stipules caducous; leaves petiolate, membranaceous, the blades oblong, 12.5–15 cm. long, acuminate, cuneate at the base, shining; racemes axillary, geminate or ternate, few-flowered, the flowers pedicellate; calyx 4-dentate; corolla subrotate, red, the tube very short, the 4 lobes oblong; stamens exserted; fruit ovoid, 4-celled.

34. SABICEA Aubl.

Sabicea amazonensis Wernham, Monogr. Sabicea 47. *pl. 5, f. 3, 4.* 1914.

Reported by Wernham from the Río Pacimoni. Also in Brazil.

A scandent shrub, the branches spreading-hirsute or glabrate; leaves about 12 cm. long and 5 cm. wide, sparsely pilose above, beneath pale and minutely arachnoid-tomentose; inflorescences sessile, villous, the bracts ovate, subinvolucrate, the flowers crowded; calyx lobes linear-lanceolate, 7–9 mm. long, 2 mm. wide; corolla white, spreading-hirsute, the tube sometimes more than 2 cm. long, the lobes ovate-lanceolate, 4 mm. long.

Sabicea colombiana Wernham, Monogr. Sabicea 39. *pl. 12.* 1914.

Type from Carabobo, *Funck & Schlim 624* (specimen seen in herb. Paris). Zulia, *Mocquerys 883* (P). Also in Colombia and Panama.

A large scandent shrub, the branches strigose; stipules large, ovate, reflexed; leaves elliptic or oval, acute or acuminate, strigose, especially beneath on the veins, or glabrate; inflorescence lax, pedunculate or subsessile, strigose, many-flowered; bracts 2–3, forming an involucre; calyx lobes linear-oblong, 4–4.5 mm. long; corolla white, strigose, the tube 9 mm. long.

Sabicea glabrescens Benth. in Hook. Journ. Bot. 3: 219. 1841.

Upper Río Casiquiare, *Spruce 3275*, according to Wernham, Monogr. Sabicea 54. 1914. Also in Amazonian Brazil, the Guianas, and Trinidad.

Branches appressed-hirsute; stipules broadly ovate or rounded, usually reflexed; leaves ovate or elliptic, 7–10 cm. long, 3–4 cm. wide, scaberulous-pubescent or glabrate above, sparsely hirsute beneath and strigose on the veins; flowers crowded in sessile clusters; calyx lobes ovate, 2 mm. long; corolla white, pilose with long gray spreading hairs, the tube 1 cm. long or more, the lanceolate lobes 4–5 mm. long.

Sabicea leucotricha Krause, Notizbl. Bot. Gart. Berlin 6: 202. 1914.

Reported by Krause, loc. cit., from Río Cuquenan, in forest near Schaweila Mota, *Ule 8779*. Also in Brazil.

A small erect shrub; stipules broadly ovate, subacuminate, sparsely pilose outside, 7–8 mm. long; leaves short-petiolate, herbaceous, the blades ovate-oblong or ovate-lanceolate, 10–15 cm. long, 3.5–4.5 cm. wide, acute, rounded at the base, appressed-pilose or glabrate above, densely whitish-tomentose beneath; flowers crowded in axillary sessile heads, the bracts broadly ovate, acuminate; calyx lobes narrowly linear, 6–7 mm. long.

Sabicea velutina Benth. in Hook. Journ. Bot. 3: 219. 1841.

Reported by Wernham (Monogr. Sabicea 50. 1914) from Roraima, *Schomburgk 901, 1333*. Trinidad, British Guiana, and Amazonian Brazil.

A scandent shrub; leaves about 12 cm. long and 6 cm. wide, rough-pubescent above, covered beneath with a soft wool, or sometimes glabrate; flowers sessile, crowded in dense sessile axillary clusters, pilose; calyx lobes linear; corolla spreading-pilose, the tube 1 cm. long; fruit ellipsoid, sparsely hirsute, 12 mm. long.

Sabicea villosa R. & S. Syst. Veg. 5: 265. 1819. *Schwenkfeldia villosa* Willd. ex R. & S. loc. cit., as syn. *Sabicea hirsuta* HBK. Nov. Gen. & Sp. 3: 417. 1820. *Schwenkfeldia hirsuta* Spreng. Syst. Veg. 1: 765. 1825.

Type of *Sabicea hirsuta* from the Orinoco, *Humboldt & Bonpland.* La Ceiba, Trujillo, *Pittier 10894* (W, Y). El Vigía, *Mocquerys 1007* (P). Widely distributed in tropical America.

A large scandent shrub, the branches hirsute; stipules broadly ovate or rounded, reflexed; leaves petiolate, the blades elliptic-oblong or ovate, acuminate, hirsute; flowers sessile in few-flowered axillary heads; calyx lobes linear-lanceolate, 4 mm. long or less; corolla white, sparsely strigose, the tube scarcely 6 mm. long; berries purple or violet, 1 cm. long.

35. BERTIERA Aubl.

Bertiera guianensis Aubl. Pl. Guian. 180. *pl. 69.* 1775.

Manoa, *Rusby & Squires 214* (W). Between Valencia and Campanero, 1,500 m., *Fendler 2343* (G). Colonia Tovar, *Fendler 2340* (K). Widely dispersed in tropical America, usually at low elevations.

A slender shrub; leaves short-petiolate, the blades ovate-oblong or ovate-lanceolate, acuminate, 9–15 cm. long, appressed-pilose; stipules 5–10 mm. long, triangular, subulate-acuminate; inflorescence a long narrow stalked panicle, the flowers white, sessile, secund; calyx and hypanthium together 2–2.5 mm. long, strigose, the lobes triangular; corolla 5–7 mm. long, appressed-pilose, the lobes deltoid-ovate, half as long as the tube; berry globose, 3.5–4 mm. in diameter, 10-costate, minutely pilose or glabrate, containing numerous small seeds.

36. HAMELIA Jacq.

Hamelia axillaris Sw. and *H. chrysantha* Sw., both of which are West Indian species, are listed by Knuth for Venezuela (Init. Fl. Venez. 668. 1928), but no reason is given for their appearance in his list. It is improbable that either occurs in Venezuela.

Hamelia lutea Rohr ex Smith in Rees, Cycl. 5: 17. 1811.

Riocito, July 9, 1923, *Mell* (W). Quebrada Chiquire, *Eggers 13526* (W). Widely distributed in tropical America.

A shrub about 1 m. high; leaves ternate, the blades thin, ovate to oblong, short-acuminate, acute at the base, almost glabrous; stipules triangular-subulate, 3–4 mm. long; sepals 1 mm. long, triangular, acute; corolla yellow, much dilated above; fruit 6–8 mm. long, oblong.

Hamelia patens Jacq. Enum. Pl. Carib. 16. 1760. *H. erecta* Jacq. loc. cit.

Without locality, *Fendler 591* (K, W). Cerros de Avila, Distrito Federal, 1,600 m., *E. Pittier 39* (Y). Las Mostazas, Miranda, *Allart 192* (Y). Cotiza, near Caracas, *Woronow 7309* (L). Widely distributed in tropical America, extending northward to Florida.

A shrub; leaves mostly ternate, ovate to elliptic, acuminate, copiously pubescent or tomentose beneath; sepals triangular, 1 mm. long or less; corolla orange-red, tubular, 1–1.5 mm. long, minutely puberulent; fruit globose or oblong, red or purple-black, about 8 mm. long.

"Coralillo." Pittier reports that the leaves are employed as a remedy for headache. The shrub is one of the most widely distributed of all American Rubiaceae, and in many places in the lowlands it is exceedingly abundant. It is one of the characteristic weedy species of cut-over lands, or of abandoned fields.

Hamelia pedicellata Wernham, Journ. Bot. 49: 212. 1911. *H. ovata* Wernham, op. cit. 211.

Cafetal La Moca, *Eggers 13386* (W). La Moca, *Eggers 13486* (W). La Guaira, *Robinson & Lyon*, July, 1900 (W). Puerto La Cruz, *Jahn 341* (W). Isla de San Carlos, *Curran & Haman 771* (W). La Guaira, *Moritz 464* (K); *André K.551* (K). San Esteban, Prov. Carabobo, *Funck & Schlim 538* (P, type collection of *H. ovata*). Also in Colombia and Ecuador.

A nearly glabrous shrub 1–2.5 m. high; leaves mostly quaternate, ovate or elliptic, short-acuminate, acute to rounded at the base, glabrate; flowers mostly pedicellate; sepals triangular or oblong, 1–2.5 mm. long; corolla orange-red, tubular, minutely puberulent, 1.5 cm. long; berries oblong, 7–9 mm. long.

"Coralillo." *H. ovata* is a form with narrow and somewhat more elongate sepals than in the typical form of *H. pedicellata*, but it scarcely seems worthy of specific or even of varietal rank.

37. HOFFMANNIA Sw.

Hoffmannia apodantha Standl. Field Mus. Bot. 8: 53. 1930.

Near Colonia Tovar, 1,200 m., *Fendler 546* (G, type; K). Headwaters of Chichiriviche and Petaquire rivers, Distrito Federal, 1,800–2,000 m., *Pittier 8124* (W). Cerros de Avila, Distrito Federal, 1,600 m., *E. Pittier 38* (W). Los Venados, near Caracas, *E. Pittier 174* (G).

A shrub 1–3 m. high, the branches sparsely short-villous or glabrate, obtusely tetragonous; stipules narrowly oblong, 4–6 mm. long, obtuse; leaves petiolate, membranaceous, the blades elliptic-oblong or elliptic, 7.5–22 cm. long, acute or acuminate, narrowed to the base and gradually decurrent, glabrous above, beneath ferruginous-villosulous, especially on the veins; flowers densely congested in the leaf axils, sessile or subsessile; calyx 4-dentate, the teeth broadly triangular, obtuse or acutish; corolla 4.5–7 mm. long, glabrous; fruit subglobose, red, 4 mm. long.

Hoffmannia pauciflora Standl. Field Mus. Bot. 4: 280. 1929.

Sierra Nevada, Prov. Mérida, 1,800 m., *Linden 1407* (L). Also in Colombia.

A slender shrub 1–2.5 m. high, the branches villosulous or puberulent; leaves slender-petiolate, the blades oblong-elliptic to oblanceolate-oblong, 8–13 cm. long, short-acuminate, acuminate and decurrent at the base, glabrous above, minutely villosulous beneath on the veins; cymes 3–7-flowered, umbelliform, short-pedunculate, shorter than the petioles, the pedicels 2–7 mm. long; calyx lobes broadly triangular, acutish; corolla whitish, glabrous or sparsely pilose, the tube 2 mm. long, the lobes oblong, 4–4.5 mm. long; fruit oblong, 4–7 mm. long, glabrous.

38. POSOQUERIA Aubl.

Posoqueria latifolia (Rudge) R. & S. Syst. Veg. 5: 227. 1819. *Solena latifolia* Rudge, Pl. Guian. 1: 26. 1806. *Stannia formosa* Karst. Ausw. Gew. Venez. 27. *pl. 9.* 1848. *P. formosa* Planch. Fl. Serres 6: 169. 1850–51. *Stannia metensis* Karst. Linnaea 28: 441. 1856. *P. metensis* Knuth, Init. Fl. Venez. 667. 1928.

Type of *S. formosa* from Colonia Tovar at 1,600–2,000 m., *Karsten.* Colonia Tovar, *Fendler 592* (G, K, M, Y), *578* (M), *587* (K). Headwaters of Chichiriviche and Petaquire rivers, Distrito Federal, 1,800–2,000 m., *Pittier 8122* (P, W). Widely distributed in tropical America.

A glabrous tree 6 m. high or less; leaves short-petiolate, coriaceous, the blades commonly oval or oblong and 8–20 cm. long, acute or short-acuminate; flowers white, in dense terminal cymes; corolla tube extremely slender, 13–18 cm. long; fruit globose, 4–5 cm. in diameter, yellow, full of large seeds.

The fruit is edible but of poor quality.

39. TOCOYENA Aubl.

Tocoyena foetida Poepp. & Endl. Nov. Gen. & Sp. 3: 25. *pl. 229.* 1845.

Reported by Schumann (in Mart. Fl. Bras. 6^6: 346. 1889) from Maipures, *Spruce 3582.* Puerto Zamuro on the Orinoco, *Gaillard 96* (P). Also in Amazonian Brazil.

Branchlets at first pilose; leaves long-petiolate, the blades oblong-lanceolate or obovate-oblong, acuminate, acute at the base, short-pilose above, soft-pubescent beneath; flowers few, terminal, subcapitate, sessile; calyx 2 mm. long, the lobes subulate; corolla 18–20 cm. long, pubescent, the lobes oblong-lanceolate, acuminate, 2.5–3 cm. long.

According to Gaillard, a tree 3–4 meters high with fragrant yellow flowers. Vernacular name "guarichamaca."

Tocoyena neglecta N. E. Brown, Trans. Linn. Soc. II. 6: 35. 1901.

Reported (loc. cit.) from Roraima, *Schomburgk 478*. Known from several stations in British Guiana.

Branchlets tomentose; leaves short-petiolate, the blades lanceolate to obovate, 7.5–17 cm. long, acute, tapering to the base, rather harshly pubescent above, densely tomentose beneath; stipules triangular, acute, 4 mm. long; flowers sessile, arranged in terminal 9–20-flowered cymes; calyx 4 mm. long or less, the 5 teeth deltoid, acuminate; corolla white, the tube 7.5–8.5 cm. long, tomentose, the lobes obliquely oblong-lanceolate, 2–2.5 cm. long, subacute, glabrous; fruit globose, 2 cm. in diameter, sparsely pubescent or glabrate.

The collection cited was reported by Schumann (in Mart. Fl. Bras. 6^6: 348. 1889) as *Tocoyena formosa* (Cham. & Schlecht.) Schum.

Tocoyena pendulina Spruce in herb., sp. nov.—Arbor praeter corollas omnino glabra, ramulis crassis subteretibus ferrugineis; stipulae persistentes erectae rigidae triangulares acutae 4–6 mm. longae; folia breviter petiolata opposita subcoriacea lucida in sicco fere nigra, petiolo crasso 7–10 mm. longo saepe fere ad basin marginato; lamina obovata 12–14.5 cm. longa 7–8 cm. lata apice late rotundata basin versus cuneatim angustata, basi ipsa acuta, venis supra prominulis, costa subtus elevata gracili, nervis lateralibus utroque latere c. 6 angulo semirecto adscendentibus gracilibus prominentibus fere rectis vel leviter arcuatis juxta marginem conjunctis; inflorescentia terminalis cymosa c. 6-flora 2.5 cm. longe pedunculata, pedunculo recurvo gracili, floribus sessilibus vel usque ad 6 mm. longe pedicellatis, bracteis obsoletis; hypanthium turbinatum 5–6 mm. longum; calycis tubus c. 2 mm. altus et 4 mm. latus subtruncatus breviter dentatus, dentibus triangularibus acutis remotis vix 1 mm. longis; corolla infundibuliformis extus glabra, tubo 4.5 cm. longo medio 3 mm. lato supra medium in faucem abrupte dilatato ore 1 cm. lato, fauce dense villosulo, lobis 5 ovalibus vel subrotundatis apice late rotundatis interdum crispis intus dense villosulis patentibus.—Venezuela: Prope Tomo in ripis fluminis Guainiae, August, 1854, *R. Spruce 3552* (herb. Kew., type).

Spruce's notes read: "These specimens were brought me—from a tree said to be of moderate size. Flowers reddish ochre."

The plant is related to *Tocoyena brasiliensis* Mart., but that differs in having acute leaves, longer flowers, and a less dilated corolla tube.

40. RANDIA L.

Randia aculeata L. Sp. Pl. 1192. 1753. *R. mitis* L. loc. cit.

Llanos de El Sombrero, *Woronow 7566* (W). Colombia to Mexico, southern Florida, and the West Indies.

A very spiny shrub; leaves chiefly obovate or rounded-obovate and 2–6 cm. long, glabrous or nearly so; flowers perfect, terminal, solitary or clustered; corolla white, 6–8 mm. long, the throat densely barbate; fruit globose, 6–12 mm. in diameter, the black pulp full of large seeds.

"Cruceto." In all the species of *Randia* the pulp is much sought by birds, which make holes in the rind so that it may be extracted. Although the pulp is black and slimy and most repulsive in appearance, it sometimes is eaten by people in the case of the species with large fruits.

The species is reported by Knuth (Init. Fl. Venez. 666. 1928) from Margarita Island and from the State of Carabobo, but I have not seen the collections on which the records are based, and do not know whether they are correctly determined.

Randia caracasana Standl. Field Mus. Bot. 8: 57. 1930. *R. armata* var. *pubescens* Knuth, Init. Fl. Venez. 666. 1928.

Bosque de Catuche above Caracas, 1,200–1,800 meters, *Pittier 6296* (F, type). Río Catuche, *Eggers 13228a* (F). Near Colonia Tovar, *Fendler 551* (G, Y). Near Zigzag, *E. Pittier 50* (G, Y). Cerro de Galipán, 1,650 meters, *Eggers 13228* (W). Curucutí, near Maiquetía, dry half-wooded slopes, *Pittier 10348* (P).

A shrub or small tree 3–6 meters high, armed with stout spines 6–13 mm. long; stipules glumaceous, ovate, short-acuminate, striate, 3–4 mm. long; leaves crowded at the ends of the branches, short-petiolate, membranaceous, the blades broadly obovate to rounded-ovate, 3–5.5 cm. long, abruptly short-acuminate, obtuse or rounded at the base, appressed-pilose above, densely velvety-pilose beneath; flowers dioecious, 1–3 at the end of the branchlet; calyx lobes obovate, cuspidate-acuminate, 5–7 mm. long; staminate corolla sparsely pilose, the tube 13 mm. long, the lobes obovate, obtuse, 8 mm. long; fruit globose-ovoid, densely pilose.

Randia formosa (Jacq.) Schum. in Mart. Fl. Bras. 6^6: 342. *pl. 141*. 1889. *Mussaenda formosa* Jacq. Enum. Pl. Carib. 16. 1760.

Without locality, *Curran & Haman 1312* (W). Tatocales de San Pedro, Zulia, *Pittier 10625* (W, Y). Widely distributed in tropical America.

An unarmed shrub; leaves short-petiolate, the blades mostly ovate or elliptic and 3–7 cm. long, thin, puberulent or appressed-pilose beneath; flowers perfect, terminal, solitary, sessile; corolla white, the slender tube 5–10 cm. long, the lobes rhombic-oblong, acuminate, puberulent outside; fruit oval, costate, 2–3 cm. long.

Reported by Schumann, loc. cit., from Perijá, *Karsten.*

Randia Gaumeri Greenm. & Thomps. Ann. Mo. Bot. Gard. 1: 410. 1915.

Lara, *Saer 141* (W). Between El Sombrero and Guárico Bridge, Guárico, *Pittier 12235* (W). Llano de El Sombrero, *Woronow 7276* (L). Also on the coast of Colombia and in Yucatán.

A very spiny shrub, similar to *R. aculeata;* leaves small, the blades cuneate-orbicular, glabrous, ciliolate, black when dried; flowers perfect, terminal, sessile; corolla white, 5–6 mm. long, the throat glabrous.

Randia orinocensis Rusby, Descr. N. Sp. S. Amer. Pl. 132. 1920.

Type from Santa Catalina, lower Orinoco, *Rusby & Squires 222.* Rusby reports also *Rusby & Squires 173.*

Glabrous except on the younger parts, these "obscurely strigose"; stipules ovate, acuminate, 3 mm. long; leaves short-petiolate, the blades lance-oblong, 3.5–10 cm. long, 2–5 cm. wide, acute or acuminate at each end; fruit sessile, broadly oval, 5 cm. long; calyx 4 mm. long, with short teeth.

I have seen no material of this species.

Randia spinosa (Jacq.) Karst. Fl. Columb. 2: 128. 1869. *Mussaenda spinosa* Jacq. Sel. Stirp. 70. 1763. *Gardenia armata* Sw. Prodr. Veg. Ind. Occ. 51. 1788. *R. armata* DC. Prodr. 4: 387. 1830. *R. dioica* Karst. Linnaea 30: 153. 1859–60. *Basanacantha spinosa* Schum. in Mart. Fl. Bras. 6^6: 378. 1889. *B. dioica* Hook. f. ex Ind. Kew. 277. 1895.

Caracas, 800–1,000 meters, *Pittier 9493* (Y). Mesa de El Sombrero, Guárico, *Pittier 12373* (W). Between Petaquire and the sea, 1,200 meters, *Fendler 2605* (G). Without locality, *Passarge & Selwyn 62* (B). Widely distributed in tropical America.

A spiny shrub or small tree, sometimes almost wholly unarmed; leaves rather large, thin, usually pubescent, at least beneath, or glabrate; flowers dioecious; corolla white or cream-colored, glabrous outside, the tube 2.5 cm. long; fruit oval or subglobose, 2.5–3.5 cm. long.

"Sajadito," "cruceta," "cruceta negra," "cruceta real," "quipito hediondo."

Basanacantha tetracantha (Cav.) Hook. f. is reported by Knuth (Init. Fl. Venez. 667. 1928) from Margarita Island, on the authority

of Ernst. The species to which this name pertains is a Mexican one. It is rather probable that the plant so reported is really *Randia formosa*.

41. GENIPA L.

Genipa americana L. Syst. Nat. ed. 10. 931. 1759.

Quebrada Chiquire, *Eggers 13531* (W). Colonia Tovar, *Fendler 2344* (G, K), *2019* (G, K, M). Escuque to Valera, Trujillo, on dry slopes, *Pittier 13156* (F, Y). Widely distributed in tropical America.

A large or small tree; leaves petiolate, large, the blades obovate, glabrous, somewhat leathery but deciduous; flowers arranged in small terminal cymes, white turning yellow, 2–4.5 cm. long; fruit globose, brownish, 6–7 cm. in diameter, the pulp filled with numerous large compressed seeds.

"Caruto," "jagua." The strong and resistant, flexible wood is whitish tinged with gray. It is much used in Venezuela, as everywhere in its range, for construction purposes as well as for furniture, cart building, and many other purposes. The juice of the edible but unattractive fruit turns dark blue upon exposure to the air, and may be used as a dye. It is employed by the aborigines of Venezuela for painting their bodies.

Genipa caruto HBK. Nov. Gen. & Sp. 3: 407. 1820. *G. americana* var. *caruto* Schum. in Mart. Fl. Bras. 6^6: 352. 1889.

Described originally from the "banks of the Orinoco and Río Negro, near Caracas and Cartagena," *Humboldt & Bonpland*. Perijá, Zulia, *Tejera 102* (W), *38* (W). Valencia, Carabobo, 400–800 meters, *Pittier 9044* (W). Guaremales Road, Carabobo, 10–100 meters, *Pittier 9004* (W). Colonia Tovar, *Fendler 593* (G). Without locality, in 1868, *Stevens* (Y). Sabana de Atures, *Gaillard 78* (P). Widely distributed in tropical America.

Differing from *G. americana* chiefly in the dense pubescence of the lower leaf surface.

It is questionable whether *Genipa caruto* is more than a variety of *G. americana*, yet the two seem to be constantly distinct in pubescence, if not in other characters, and there do not appear to be intergrading forms. It is said that the wood of the two forms is distinct, which would indicate that there might be fundamental differences between the two trees. Both are employed in the same manner. Pittier reports that the wood often is employed for making axe handles. He states, also, that in Cojedes there is prepared from fruit of this species a laxative medicine called *mana* or *azúcar de caruto*. The vernacular names in Venezuela are "caruto" and "jagua."

42. DUROIA L. f.

Duroia eriopila L. f. Suppl. Pl. 30. 1781.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 367. 1889) from the vicinity of Roraima, *Schomburgk 912*. Also in the Guianas.

A tall tree, the branchlets villous; stipules caducous; leaves short-petiolate, coriaceous, the blades oblong or obovate-oblong, 14–26 cm. long, short-acuminate, acute at the base; staminate inflorescence terminal, dense, many-flowered, the flowers sessile; calyx truncate, 8–9 mm. long; corolla sericeous, 2.5–2.7 cm. long, the lobes linear-oblong, acutish, nearly equaling the tube; pistillate flowers solitary, short-pedicellate; fruit globose, pilose, 8 cm. in diameter, yellow.

The vernacular names reported from Surinam are "marmelade doosjes-boom" and "bosch marmel doos." The fruits are edible.

Duroia fusifera Hook. f. ex Schum. in Mart. Fl. Bras. 6[6]: 363. 1889. *Amaioua fusifera* Spruce ex B. & H. Gen. Pl. 2: 82. 1873, nomen.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3405*.

Stipules 13 mm. long, appressed-pilose; leaves quaternate, short-petiolate, coriaceous, the blades oblong, 4–10 cm. long, 2–5 cm. wide, obtuse, narrowed to the base, glabrous, the margin recurved; fruit solitary, pedicellate, fusiform, glabrous, 3–3.5 cm. long, 2 cm. thick; calyx truncate, sericeous within.

Duroia genipoides Hook. f. ex Schum. in Mart. Fl. Bras. 6[6]: 364. 1889. *Amaioua genipoides* Spruce ex B. & H. Gen. Pl. 2: 82. 1873, nomen. *D. Sprucei* Rusby, Descr. N. Sp. S. Amer. Pl. 133. 1920.

Type from Maipures, on the Orinoco, *Spruce 3624*. The same number is the type of *D. Sprucei*. Sacupana, *Rusby & Squires 172* (F, W).

Branchlets glabrous; stipules 8–10 mm. long, sericeous outside; leaves ternate, short-petiolate, coriaceous, the blades obovate to oblong, 9–12 cm. long, shortly obtuse-acuminate or obtuse, cuneate at the base, glabrous; fruits long-pedicellate, narrowly oblong, 2–3 cm. long, 1.5 cm. in diameter, rounded at the base and apex, glabrous; calyx 1 cm. long, glabrous outside, sericeous within.

Duroia hirsuta (Poepp. & Endl.) Schum. is listed by Knuth, Init. Fl. Venez. 667. 1928, but the species is not known from Venezuela, so far as the available material indicates. Knuth's report evidently is based upon a Colombian specimen.

Duroia oocarpa (Spruce) Standl., sp. nov. *Amaioua oocarpa* Spruce in herb.—Arbor tenuis subramosa 5.5 m. alta, ramulis crassis dense hispidis, internodiis valde abbreviatis; stipulae lanceo-

lato-oblongae c. 3 cm. longae suberectae ferrugineae extus dense hirsutae intus glabrae; folia breviter petiolata opposita subcoriacea, petiolo gracili c. 2 cm. longo dense fulvo-hirsuto; lamina anguste oblanceolato-oblonga c. 30 cm. longa et 5–7 cm. lata abrupte longi-acuminata, acumine angusto attenuato 2–3 cm. longo, basin versus longe sensimque attenuata, supra in sicco fere nigra, densiuscule pallido-puncticulata, ad costam sparse hirsuta, aliter glabra, venis plus minusve impressis, subtus multo pallidior, ubique subsparse sed molliter pilis brevibus rigidis patentibus fulvis hispidulo-pilosa, costa gracili elevata, nervis lateralibus utroque latere c. 17 angulo c. semirecto adscendentibus gracilibus elevatis leviter curvis marginem attingentibus, margine revoluto, nervulis obsoletis; bacca ut videtur terminalis et sessilis plumbeo-caerulea punctis albidis maculata ovalis c. 6 cm. longa sparse hirsuta, calyce persistente coronata; calycis tubus cylindraceus c. 6 mm. longus dense hirsutus, laciniis linearibus 1–1.5 cm. longis extus hirsutis recurvis; semina numerosa magna.—Venezuela: In sylvis umbrosis fluminis Guainiae, June, 1854, *R. Spruce 3515* (herb. Kew., type).

The leaves are rather similar to those of *D. eriopila* L. f., but longer and narrower; the calyx in that species is truncate or denticulate. In Schumann's key to the species of the genus in the *Flora Brasiliensis* the plant would run to *D. hirsuta* (Poepp. & Endl.) Schum., but that has conspicuously different leaves and inflated branchlets.

Durcia saccifera (Mart.) Hook. f. ex Schum. in Mart. Fl. Bras. 6[6]: 362. *pl. 146, f. 1.* 1889. *Amaioua saccifera* Mart. ex R. & S. Syst. Veg. 7: 91. 1829.

Reported by Schumann, loc. cit., from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3270.* Also along the Amazon in Brazil.

A shrub 2–3 meters high, the branchlets hispid; stipules 1–3 cm. long; leaves ternate, very shortly petiolate, bearing at the base 2 inflated pouches, the blades oblong-lanceolate or obovate-oblong, 15–35 cm. long, acuminate, attenuate to the base, hirsute; staminate inflorescence short, composed of 3-flowered cymes, 3–4 cm. long, the pedicels 3–7 mm. long; calyx tubular, truncate, with 5–6 filiform teeth; corolla sericeous, 3 cm. long, the lobes linear-lanceolate, half as long as the tube or longer; fruit ovoid, 6 cm. long, pluricostate, acuminate, rounded at the base, rufous-hispid.

Schumann reports from Brazil the names "caá-jusará" and "folha de comminâo." The inflated sacs of the leaves are reported to be inhabited by ants.

43. AMAIOUA Aubl.

Amaioua corymbosa HBK. Nov. Gen. & Sp. 3: 419. 1820. *Gardenia hexandra* Willd. ex R. & S. Syst. Veg. 5: 243. 1819.

Manoa, *Rusby & Squires 314* (F, W, Y). Central America to the Guianas and Cuba.

A shrub or small tree; stipules lance-oblong, 1.5–2.5 cm. long, ferruginous-sericeous outside, united at first into a conic cap, deciduous; leaves short-petiolate, oval to elliptic, 5–20 cm. long, short-acuminate, at the base rounded to acute, more or less sericeous beneath along the veins; flowers white, dioecious, the staminate flowers corymbose; calyx cupular, 3–4 mm. long, 6-denticulate; corolla about 18 mm. long, its tube retrorse-sericeous, the lanceolate lobes about equaling the tube; pistillate flowers capitate or corymbose, the corolla 1 cm. long; fruit baccate, oval or obovoid, 1.2–1.5 cm. long, sparsely sericeous, containing numerous small, irregularly angulate seeds.

44. STACHYARRHENA Hook. f.

Stachyarrhena longifolia Hook. f. Icon. Pl. *pl. 1068*. 1870.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3346*.

A small tree, glabrous throughout; stipules persistent, broadly triangular, obtuse; leaves petiolate, coriaceous, the blades linear-oblong, 20–23 cm. long, 5.5–6.5 cm. wide, obtuse, acute at the base; staminate inflorescence spicate, twice as long as the petiole, erect, terminal, pedunculate; calyx cupular, truncate, 1–1.5 mm. long.

Stachyarrhena spicata Hook. f., var. **multinervia** Schum. in Mart. Fl. Bras. 6^6: 370. 1889.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3322*. The typical form of the species grows in Amazonian Brazil.

A small glabrous tree; leaves long-petiolate, rigidly herbaceous, oblong or oblong-lanceolate, obtuse, 6–11 cm. long, subacuminate at the base; inflorescence spicate, erect, sessile; calyx 1.5 mm. long; corolla ochroleucous, 7–8 mm. long, caducous, the short lobes ovate-triangular, acute; fruit baccate, globose, 1.5 cm. in diameter.

45. ALIBERTIA A. Rich.

Alibertia edulis (L. Rich.) A. Rich. ex DC. Prodr. 4: 443. 1830. *Genipa edulis* L. Rich. Act. Soc. Hist. Nat. Paris 1: 107. 1792. *Cordiera edulis* Kuntze, Rev. Gen. 1: 279. 1891.

Perijá, Prov. Maracaibo, *Plée 139* (P). Widely distributed in tropical America.

A glabrous shrub or small tree, sometimes 6 meters high; leaves short-petiolate, coriaceous, the blades lance-oblong to oval-ovate, 6–20 cm. long, usually short-acuminate, acute to rounded at the base; flowers terminal, white, dioecious, sessile; calyx denticulate; corolla 2–3 cm. long, sericeous outside, the 4–5 lobes acuminate; fruit baccate, globose, 2.5 cm. in diameter, yellowish, containing numerous large compressed seeds.

Alibertia granulosa Rusby, Descr. N. Sp. S. Amer. Pl. 133. 1920.

Santa Catalina, lower Orinoco, *Rusby & Squires 174* (F, W, type collection), *296* (Y). Perijá, Zulia, *Tejera 20* (W). Caño del Corozal to Corozal, *Bond, Gillin & Brown 206* (W, Y).

A glabrous shrub or small tree; stipules ovate, acute, 6 mm. long; leaves short-petiolate, coriaceous, the blades oblong, 8–16 cm. long, 3–6 cm. wide, abruptly short-acuminate, obtuse at the base; fruit sessile, globose, 2 cm. in diameter, often granular-roughened; calyx 4 mm. long.

Alibertia latifolia (Benth.) Schum., var. **parvifolia** Schum. in Mart. Fl. Bras. 6^6: 386. 1889.

Reported by Schumann, loc. cit., from the region of Roraima, *Schomburgk 462*. Also in British Guiana. The typical form of the species grows in northern Brazil and British Guiana.

Glabrous or nearly so; stipules 5–8 mm. long, triangular, acuminate; leaves short-petiolate, the blades oblong, short-acuminate or obtuse, small, usually barbate beneath in the axils of the veins; staminate flowers about 5, sessile; calyx 5–7-denticulate, 5–6 mm. long, the teeth subulate; corolla sericeous, 2 cm. long, the 4 lobes obliquely ovate, acuminate, equaling the tube.

46. GARDENIA L.

Gardenia jasminoides Ellis, Phil. Trans. 51^2: 935. 1761. *Gardenia florida* L. Sp. Pl. ed. 2. 305. 1762.

Reported by Pittier (Pl. Usual. Venez. 281. 1920) as cultivated for ornament. Native of tropical Asia.

A shrub or small tree with leathery persistent leaves and large, showy, fragrant, white or cream-colored flowers, these often "double" in horticultural forms.

"Malabar," "jazmín de Malabar."

47. RETINIPHYLLUM H. & B.

Retiniphyllum concolor (Spruce) Muell. Arg. in Mart. Fl. Bras. 6^5: 8. 1881. *Commianthus concolor* Spruce ex Benth. in Hook. Kew Journ. 5: 235. 1853.

Near San Carlos, *Spruce 3535* (ex Muell. Arg. in Mart. Fl. Bras. 6^5: 8. 1881). Also along the Rio Negro in Brazil.

A shrub 2–3 meters high, the branchlets glabrous; stipule sheath broader than long, truncate; leaves petiolate, coriaceous-membranaceous, the blades oblong-elliptic, cuspidate, acute at the base, 9–18 cm. long, minutely scabrous beneath on the veins; racemes terminal, sessile or nearly so, the flowers distinctly pedicellate; bractlets connate into an orbicular cup; pedicels almost as long as the hypanthium; calyx tube shorter than the hypanthium, obsoletely 5-dentate; corolla 30–33 mm. long, very minutely puberulent, greenish outside, flesh-colored within, the lobes scarcely half as long as the tube; fruit 5-angled, 6 mm. long, the nutlets acutely 3-carinate dorsally.

Retiniphyllum erythranthum, sp. nov.—Frutex ramosus, ramulis scaberulo-puberulis; stipulae breves; folia petiolata; lamina coriacea ovali, late elliptica vel rarius oblanceolato-oblonga, basi rotundata, apice rotundata vel obtusissima et apiculata, supra glabra, lucida, subtus pallida, ad costam strigosa, aliter glabra vel glabrata; flores terminales subcapitati pauci arcte sessiles, involucello disciformi subintegro; calyx breviter inaequaliter dentatus; corolla rubra extus sparse sericea, lobis oblongis acutiusculis subreflexis; stamina exserta; pyrenae dorso leviter obtuse costatae.

A shrub about 2.5 meters high, apparently densely branched, the young branchlets stout, terete, rather densely rough-puberulent, the internodes short; stipules 2–3 mm. long, united into a shallowly bilobate sheath, densely strigose outside, often, like the young leaves and branches, covered with a resinous exudate; leaves opposite, petiolate, the stout petiole 3–8 mm. long, strigose or subappressed-pilose; leaf blades coriaceous, oval to broadly elliptic or oblong-elliptic, rarely oblanceolate-oblong, 3–7 cm. long, 1.5–3 cm. wide, usually rounded or obtuse at the base, rarely attenuate to an acute base, at the apex rounded or very obtuse and shortly apiculate, when mature glabrous and shining on the upper surface or pilosulous only along the impressed costa, beneath paler, pale-punctate, strigose along the costa and sometimes also along the veins, elsewhere glabrous, the costa slender and prominent, the veins about 6 pairs, very slender and inconspicuous, irregular, ascending at an acute angle, anastomosing remote from the margin; flowers terminal, few, clustered in a headlike inflorescence, closely sessile; involucel saucer-shaped, inconspicuous, nearly entire; hypanthium broadly obovoid, almost 3 mm. long, like the calyx densely scaberulous and sometimes sparsely hispidulous; calyx campanulate, 4–4.5 mm. long, often covered with a whitish resinous exudate, shallowly dentate, the teeth broadly triangular, acute or subobtuse; corolla red, thinly sericeous outside, the rather stout tube 2.5 cm. long, slightly dilated above and nearly 5 mm. broad, short-pilose in the throat, the lobes oblong, obtuse or acutish, about 11 mm. long, reflexed, minutely pilose or sericeous within; stamens inserted at the summit of the corolla tube, the filaments slender, 6 mm. long, densely appressed-pilose, the slender anthers 3 mm. long, attenuate, dorsifixed slightly above the base; style and stigma exserted about 1 cm., the slender style short-pilose; fruit globose, glabrous or nearly so, 8 mm. in diameter, the 5 pyrenes shallowly sulcate and obtusely costate dorsally.—Venezuela: Mount Duida, slopes at Central Camp, alt. 1,440 meters, December 28, 1928, to January 1, 1929, *G. H. H. Tate 561* (herb. N. Y. Bot. Gard., type; photo. in herb. Field Mus.). Mount Duida, summit of Ridge 25, at 1,800 meters, *Tate 465* (Y). Dry slopes of savanna hills, Mount Duida, at 1,320 meters, *Tate 756* (Y).

The collector describes the plant as a "spindly shrub" with hard leaves and red calyx and corolla.

The genus *Retiniphyllum* is a rather isolated one in the Rubiaceae, being referred usually to a separate tribe, and being confined in its distribution chiefly to the Amazon Valley. The present species is referable to the subgenus *Commianthus*, in which it is noteworthy for its sessile, headlike inflorescence.

Retiniphyllum laxiflorum (Benth.) N. E. Brown, Trans. Linn. Soc. II. 6: 36. *pl. 6*. 1901. *Patima laxiflora* Benth. in Hook. Journ. Bot. 3: 220. 1841. *Synisoon Schomburgkianum* Baill. Bull. Soc. Linn. Paris 208. 1879.

Described from British Guiana. Reported from the upper slopes of Mount Roraima, the collections cited being *McConnell & Quelch 18, Appun 1175, Schomburgk 724 (815b), 158.*

A shrub or tree, glabrous except on the flowers; leaves petiolate, thinly coriaceous, the blades elliptic or elliptic-oblong, 3.5–12 cm. long, obtuse, subcuneate at the base; racemes terminal, 3–9-flowered, erect, the flowers opposite in pairs; pedicels 12–16 mm. long; calyx 4–4.5 mm. long, with 5 minute distant teeth; corolla minutely appressed-pubescent outside, the tube 16–18 mm. long, the lobes reflexed, 14 mm. long, linear-oblong, obtuse; stamens exserted and reflexed; berry globose, costate, 6 mm. in diameter, the 5 nutlets 3-keeled on the back.

Brown (loc. cit.) states that in Bentham and Hooker's *Genera Plantarum* (2: 98) this plant was confused with *Kotchubaea insignis*, the description of the fruit published there being drawn from fruit of *Retiniphyllum*, which is altogether different from that of *Kotchubaea*. In its long-pediceled flowers the present species is conspicuously unlike others of its genus.

Retiniphyllum pauciflorum Kunth ex Krause, Bot. Jahrb. Engler 40: 326. 1908.

Type collected near San Baltazar on the Río Atabapo, *Humboldt 934*. Represented in the herbarium of Field Museum by a photograph and fragment from the Berlin herbarium.

A glabrous tree; leaves short-petiolate, the blades elliptic, obtuse or obsoletely retuse, subcuneate at the base, coriaceous, 4–6 cm. long, 2–2.5 cm. wide; flowers 2–3 at the tip of the branchlet, the pedicels 2 mm. long; calyx tubular-campanulate, truncate and obsoletely 5-denticulate; corolla purplish, sericeous, the 5 lobes oblong-linear, obtuse, shorter than the tube.

Retiniphyllum pilosum (Spruce) Muell. Arg. in Mart. Fl. Bras. 6^5: 7. 1881. *Commianthus pilosus* Spruce ex Benth. in Hook. Journ. Bot. 5: 233. 1853.

Near San Carlos, Río Negro, *Spruce 3137* (K). Also in adjacent Brazil.

A small shrub, everywhere hispid-pubescent; stipules 2–2.5 cm. long; leaves petiolate, rigidly submembranaceous, the blades lance-obovate, 7–12 cm. long, acute, cuneately narrowed at the base; spikes terminal, pedunculate, shorter than the leaves; flowers closely sessile; calyx 5-lobate, the lobes triangular-lanceolate; corolla subsericeous, 15–17 mm. long, the lobes nearly as long as the tube; fruit globose-pyramidal, 5.5 mm. long, 5-carinate, hirsute.

Retiniphyllum scabrum Benth. (in Hook. Journ. Bot. 3: 222. 1841) may occur in Venezuela, but the type was collected probably in British Guiana.

Retiniphyllum Schomburgkii (Benth.) Muell. Arg. in Mart. Fl. Bras. 6[5]: 12. 1881. *Commianthus Schomburgkii* Benth. in Hook. Journ. Bot. 3: 223. 1841.

Esmeralda, tree savannas, 100 meters, *Tate 321* (Y). Reported also from Mount Roraima, and in Surinam and Brazil. Mueller reports *Spruce 3247* from Esmeralda.

A shrub 3–4.5 meters high, the branchlets hirtellous; leaves short-petiolate, the blades lance-elliptic, acute at each end, 6–8 cm. long, hirtellous; spikes 5–6 cm. long, pedunculate, terminal, the flowers closely sessile; calyx 2.5 mm. broad, minutely 5-denticulate; corolla white, 15 mm. long, sericeous, the lobes longer than the tube; fruit subglobose, 5-sulcate, translucent, red, 5 mm. long.

Retiniphyllum secundiflorum H. & B. Pl. Aequin. 1: 86. *pl. 25*. 1806. *Nonatelia secundiflora* Spreng. Syst. Veg. 1: 751. 1825.

Type collected at San Baltazar, in the region of the Orinoco and Atabapo rivers, *Humboldt & Bonpland* (photo. in F). Mueller (in Mart. Fl. Bras. 6[5]: 8. 1881) reports *Spruce 3413* from the region of the Casiquiare, Vasiva, and Pacimoni rivers.

A shrub 4.5 meters high, the trunk 10 cm. in diameter, the branchlets glabrous, covered with resin; stipule sheath 4–5 mm. long; leaves short-petiolate, coriaceous, the blades oblong-obovate, rounded-obtuse, 7–9 cm. long, glabrous above, beneath densely white-tomentulose; racemes axillary, about as long as the leaves, naked below; calyx lobes triangular-subulate; corolla 18–24 mm. long, sericeous, the lobes shorter than the tube, linear, obtuse; ovary 5–6-celled.

Retiniphyllum truncatum Muell. Arg. in Mart. Fl. Bras. 6[5]: 11. 1881.

Type collected along the Río Negro above the mouth of the Río Casiquiare, *Spruce 3131* (photo. ex herb. Berol. in herb. Field Mus.).

Glabrous throughout; leaf blades elliptic, acute at each end, 6–8 cm. long, 3–4.5 cm. wide; spikes terminal, longer than the leaves, pedunculate, the flowers closely sessile; calyx truncate; corolla 15–17 mm. long, sericeous, the lobes distinctly longer than the tube.

48. MACHAONIA H. & B.

Machaonia Ottonis (Schum.) Urban, Symb. Ant. 5: 511. 1908. *M. spinosa* var. *Ottonis* Schum. in Mart. Fl. Bras. 6[6]: 100. 1888.

Type from the region of Caracas and La Guaira, *Otto 375*. Cabo Blanco, *Curran & Haman 915* (F, W), *948* (F, W). Puerto Cabello, *Curran & Haman 1159* (W). La Guaira, *Moritz 1510* (W). Between Caracas and La Guaira, 540 meters, *Fendler 541* (G). Near El Zigzag, Distrito Federal, *E. Pittier 69* (G, W, Y). Hacienda Puerto La Cruz, Distrito Federal, *Pittier 8098* (W). Near El Palito, Carabobo, *Pittier 8199* (W), *9073* (W). Cabo Blanco, *Pittier 10273* (W). Puerto de Cruz, *Woronow 7536* (L). Caracas, *Linden 295* (F). Also in Colombia.

A shrub or small tree, the branchlets often with spinose tips; leaves short-petiolate, the blades elliptic, 3–6 cm. long, acute or acuminate, glabrous; flowers small, white or yellowish, arranged in large corymbiform panicles; calyx lobes suborbicular; fruit densely pubescent.

Machaonia sulphurea Wernham, Journ. Bot. 51: 220. 1913.

Type from Venezuela, without definite locality, *Ernst*.

A shrub with glabrous branchlets; leaves sessile or nearly so, oval, about 5 cm. long and 2.5 cm. wide, subacuminate, acute at the base, glabrous; branches of the panicle pubescent; calyx lobes oblong, 6 mm. long, glabrate but pubescent near the margin; corolla glabrate, 2.5 mm. long, the oblong lobes more than half as long as the tube; hypanthium oblong, 1.8 mm. long, densely hispidulous with sulphur-colored hairs.

Probably this name should be referred to synonymy under *M. Ottonis*.

49. NEOBLAKEA Standl.

The genus consists of a single species.

Neoblakea venezuelensis Standl. Field Mus. Bot. 8: 54. 1930.

Guaremales, road from Puerto Cabello to San Felipe, Carabobo, in forest, 10–100 meters, *Pittier 8878* (W, type; G, Y). Around Palmasola, in forests along the Aroa River, Lara, near sea level, *Pittier 6376* (B, W). Río Chiquire, *Eggers 13388* (W). Los Mengos, *Eggers 13388* (W). Without locality, July 29, 1891, *Eggers* (W).

A branched shrub, the branchlets glabrous or bifariously puberulent; stipules 2–3 mm. long, trifid almost to the base, the lobes linear-filiform; leaves short-petiolate, the blades ovate or ovate-oblong, 2.5–8 cm. long, 1.3–3.5 cm. wide, long-acuminate, obtuse or subrounded at the base, sparsely scaberulous or glabrate above, beneath minutely appressed-pilose along the veins; panicles sessile, terminal, sometimes pedunculate, 1.5–4 cm. long, many-flowered, the flowers sessile and more or less secund; bractlets with 1–2 red tubercle-like glands at the base; calyx lobes linear-oblong, 1 mm.

long; corolla white, glabrous outside or minutely puberulent at the apex, 4 mm. long, sparsely villous in the throat; drupe subglobose, 3.5–4 mm. in diameter, glabrate, 3–4-celled.

50. GUETTARDA L.

Guettarda ambigua DC. is reported from Venezuela by Knuth (Init. Fl. Venez. 668. 1928), on the authority of Ernst. The species to which this name belongs is a West Indian one which probably does not occur in Venezuela.

Guettarda caracasana Standl. ex Pittier, Pl. Usual. Venez. 197. 1926, hyponym; Field Mus. Bot. 8: 59. 1930.

Middle Cotiza, near Caracas, in light forest, *Pittier 7222* (W, type). Between Caracas and La Guaira, 600 meters, *Fendler 576* (G). Vicinity of Caracas, *Bailey 397* (W). Lower Cotiza, near Caracas, 800–1,200 meters, *Pittier 7896* (W). Lower Catuche Wood, above Caracas, 1,000–1,200 meters, *Pittier 7282* (W). Middle Cotiza, near Caracas, 1,000–1,400 meters, *Pittier 7050* (W). Las Ajuntas, *Eggers 13347* (W).

A shrub or tree 3–6 meters high, the branchlets densely pilose; stipules caducous, 7–9 mm. long, ovate or lanceolate, acuminate or attenuate; leaves petiolate, membranaceous-coriaceous, the blades broadly elliptic or oblong-elliptic, 7–13 cm. long, 3–8 cm. wide, acute or short-acuminate, obtuse or rounded at the base, densely hirtellous or hispidulous above, tomentose beneath; cymes dense, headlike, many-flowered, long-pedunculate; calyx 4 mm. long, fulvous-tomentose; corolla white or pale pink, fulvous-sericeous, the tube 1.5 cm. long, the 6 lobes oblong, obtuse, 6–9 mm. long; fruit oval, about 16 mm. long and 12 mm. broad.

Vernacular name, "cruceto."

Guettarda discolor Rusby, Descr. N. Sp. S. Amer. Pl. 134. 1920. *G. tovarensis* Standl. ex Knuth, Init. Fl. Venez. 668. 1928, nomen.

Colonia Tovar, in forest, 1,700–2,300 meters, *Pittier 9967* (W). Also in Colombia.

A tree, sometimes 8 meters high; leaves petiolate, thin, the blades elliptic to lance-oblong, 7–15 cm. long, acuminate at each end, green above and hispidulous, beneath minutely grayish-tomentose, appressed-pilose on the veins; inflorescence furcate, the branches simple, the flowers secund; corolla pale pink, 12 mm. long; fruit acutely 4-angled.

Guettarda divaricata (H. & B.), comb. nov. *Dicrobotryum divaricatum* H. & B. ex R. & S. Syst. Veg. 5: 221. 1819. *Guettarda xylosteoides* HBK. Nov. Gen. & Sp. 3: 420. *pl. 292.* 1820.

Type collected along the Orinoco between Angostura and Ferreras, *Humboldt & Bonpland.*

A tree 6 meters high, the branchlets hirtous; stipules lanceolate, acuminate, as long as the petioles; leaves petiolate, membranaceous, the blades elliptic-oblong or obovate-oblong, acute, rounded at the base, 3.5–5 cm. long, glabrous above, hirtous beneath on the veins; cymes bifid, 3–7-flowered, pedunculate; corolla white, pubescent, the lobes 6, oblong, obtuse; fruit globose, pubescent, 5–6-celled.

This species is the type of the genus *Dicrobotryum* Willd. ex R. & S. (op. cit. xiii). The species may not be distinct from *Guettarda parviflora* Vahl.

Guettarda elliptica Sw. Prodr. Veg. Ind. Occ. 59. 1788.

San Joaquín, Carabobo, 480–1,200 meters, *Pittier 7904* (W). Llanos de Acarigua, Portuguesa, in savannas, *Pittier 11731* (W). Locality uncertain, *Geay* (P). Between Cujicito and Sarare, in thin forest, *Saer 466* (F). Prov. Carabobo, *Funck & Schlim 643* (F). Extending to Mexico, the West Indies, and southern Florida.

A shrub or small tree, sometimes 8 meters high, the branchlets appressed-pilose; stipules deltoid-acuminate, 2.5–3 mm. long; leaves short-petiolate, membranaceous, the blades chiefly oval or rounded-oval, 3–7 cm. long, rounded or obtuse and apiculate, truncate to acute at the base, minutely appressed-pilose above or glabrate, minutely appressed-pilose beneath or finally glabrate; cymes mostly 3-flowered, pedunculate; calyx 2–2.5 mm. long, tomentulose; corolla white, tinged outside with pink, the tube 6–9 mm. long, the 4 lobes 2–2.5 mm. long; fruit subglobose, 4–8 mm. long, 2–4-celled, purplish.

Guettarda frondosa Moritz ex Standl. Field Mus. Bot. 8: 60. 1930. *Matthiola frondosa* Kuntze, Rev. Gen. 1: 228. 1891, nomen.

La Guaira, *Moritz 1735* (K, type).

Branchlets densely strigose; stipules caducous; leaves slender-petiolate, thick-membranaceous, the blades broadly elliptic or almost rounded, 12–15 cm. long, 8–10 cm. wide, abruptly acuminate, acute at the base or abruptly contracted and decurrent, strigose above along the veins, minutely appressed-pilose beneath on the veins; cymes axillary, bifurcate, pedunculate, the branches 1 cm. long, the flowers dense, secund; calyx 1.2 mm. long, tomentulose; corolla in bud 6 mm. long, the tube retrorse-sericeous.

Guettarda parviflora Vahl, Eclog. 2: 26. 1798. *G. parvifolia* Sw. Fl. Ind. Occ. 3: 1958. 1806. *Myginda Bredemeyeri* Schult. Mant. 3: 349. 1827.

Colonia Tovar, *Fendler 574* (G, K, Y). Cristóbal Colón, *Broadway 379* (W, Y). Valencia, *Warming 166* (W); at 400–800 meters, *Pittier 9014* (W). Cumaná, 750 meters, *Funck 623* (L), *35* (L). Along the Orinoco, *Gaillard 121* (P). West Indies and the Guianas.

A shrub or tree, sometimes 10 meters high; branchlets appressed-pilose; stipules deltoid-acuminate, 2–3 mm. long; leaves petiolate,

membranaceous, the blades mostly elliptic or oval-elliptic, 2–5 cm. long, 1–3 cm. wide, rounded to acute at each end, usually glabrous above, beneath minutely appressed-pilose along the veins or glabrate; cymes 3-flowered, the central flower sessile, the others on branches 1–3 mm. long, the peduncles 1–2.5 cm. long; calyx 1.5 mm. long; corolla white or pinkish white, antrorse-sericeous, the tube 7–9 mm. long, the 5–6 lobes 2.5–3 mm. long; fruit globose, 4–5 mm. in diameter, 5-celled, minutely tomentulose, black at maturity.

Pittier 9014 was listed incorrectly by Knuth (Init. Fl. Venez. 669. 1928) as *Chomelia brachyloba* Standl.

Guettarda Pittieri Standl. Field Mus. Bot. 8: 60. 1930.

Río Chico, Miranda, *Jahn 1283* (W, type). Near Caracas, 1,000 meters, *Pittier 9622* (W, Y). Between Caracas and La Guaira, 600 meters, *Fendler 575* (G). La Guaira, *Moritz 959* (K).

A tree 6 meters high, the branchlets densely ochraceous-strigose; stipules caducous, 5–6 mm. long, ovate-acuminate; leaves slender-petiolate, thick-membranaceous, the blades broadly elliptic to oblong-elliptic, 8–15 cm. long, 4–8.5 cm. wide, acute or acuminate, obtuse or rounded at the base, sparsely and minutely strigillose above or glabrate, beneath sericeous-strigose; cymes few-flowered, dense, headlike, pedunculate; calyx 3 mm. long, densely sericeous; corolla white, fulvous-sericeous, the tube 16–18 mm. long, the 5–6 lobes oblong, rounded at the apex; fruit globose or depressed-globose, 13–18 mm. broad, densely and minutely tomentose, 5–6-celled.

Guettarda Rusbyi Standl. Field Mus. Bot. 4: 288. 1929.

Cumaná, *Funck 644* (K, Y). La Guaira, *Karsten* (L). Also in Colombia.

A small tree, the young branchlets strigillose; leaves short-petiolate, the blades ovate-elliptic to oblong-elliptic, 5–12.5 cm. long, acuminate, rounded or obtuse at the base, scaberulous or glabrate above, strigillose or rarely puberulent beneath along the veins; cymes dense, long-pedunculate, few-flowered; corolla tube 10–13 mm. long, densely sericeous, the oval lobes 3 mm. long; fruit oval, 7–12 mm. long, 4-celled.

Guettarda scabra (L.) Lam. Tabl. Encycl. 2: 218. 1793. *Mathiola scabra* L. Sp. Pl. 1192. 1753.

Margarita Island, *Johnston 114* (F, W). Ranging to the West Indies and southern Florida.

A shrub or small tree, sometimes 9 meters high; leaves petiolate, the blades elliptic to obovate, 10–15 cm. long and 6–12 cm. wide, usually short-acuminate, rough on the upper surface, densely pilose or sericeous beneath; stipules subulate, deciduous, 1 cm. long; cymes long-pedunculate, with short branches; corolla white, densely pilose, the tube elongate, the lobes 5–7; fruit globose, tomentose, 3–6-celled.

51. MALANEA Aubl.

Malanea Fendleri Standl. Field Mus. Bot. 8: 61. 1930.

Near Colonia Tovar, 1,800 meters, *Fendler 2555* (G, type).

Branchlets ferruginous-hirsute; stipules deciduous, elliptic-ovate, acute, 6 mm. long; leaves petiolate, subcoriaceous, the blades elliptic-oblong or oblong, 6.5–14 cm. long, 2.5–6.5 cm. wide, acute or abruptly acute, obtuse or narrowly rounded at the base, glabrous or sparsely hispid above, beneath appressed-hispidulous and along the veins hispid; panicles lax and many-flowered, pedunculate, 4.5–5.5 cm. long, 1–1.5 cm. wide, the short branches densely ferruginous-hispidulous, the flowers sessile; hypanthium glabrous; calyx 1–1.3 mm. long, scaberulous, lobed to the middle, the lobes rounded; fruit oblong, 1 cm. long, glabrous.

Malanea gabrielensis Muell. Arg. in Mart. Fl. Bras. 6^5: 45. 1888.

Río Pacimoni, *Spruce* (K). Mueller reports *Spruce 3446* from the same river. Also in adjacent Brazil.

A scandent shrub; stipules triangular, acuminate; leaves petiolate, rigid, the blades lance-elliptic to elliptic or ovate or even rounded-elliptic, 6–12 cm. long, 2.5–8.5 cm. wide, sparsely appressed-pubescent beneath; inflorescence pedunculate, interrupted below, dense above; calyx repand-5-lobulate; corolla sericeous, lobed to about the middle, barbate within; fruit ellipsoid, 7–8 mm. long, glabrous.

Malanea hirsuta Standl. Field Mus. Bot. 8: 61. 1930.

A few miles south of Colonia Tovar, 1,050 meters, *Fendler 569* (G, type; K, M, Y).

A large scandent shrub, the branchlets densely fulvous-hispid; stipules 5 mm. long, lanceolate, acuminate; leaves short-petiolate, thick-membranaceous, the blades lance-oblong, 5.5–8 cm. long, 2–3 cm. wide, acuminate, acute at the base, densely hirsute on both surfaces; panicles spikelike, pedunculate, 2–3 cm. long, sometimes branched at the base, the rachis densely short-hirsute, the flowers sessile; calyx 1 mm. long, the short lobes rounded, hispidulous; fruit oblong, 10–12 mm. long, 5 mm. thick, glabrous, 2-celled.

Malanea roraimensis Wernham, Journ. Bot. 50: 243. 1912.

Type from Roraima, *Schomburgk 1002*. Wernham reports also *Schomburgk 159* (*299*).

Branchlets strigose; stipules 7–10 mm. long, ovate or lanceolate, glabrous; leaves short-petiolate, the blades oblanceolate, 8–9 cm. long, 3 cm. wide, very shortly acuminate, narrowed to the base, glabrous; inflorescence spicate, pedunculate, more or less interrupted, the rachis densely strigose-pubescent, the flowers 4-parted, 3 mm. long; calyx teeth short and obtuse; corolla sparsely pubescent outside, barbate in the throat, the lobes obtuse, slightly longer than the tube.

Malanea ursina Standl. Field Mus. Bot. 8: 62. 1930.

Río Vasiva, *Spruce* (K, type).

Branchlets densely brownish-hispid; stipules ovate-oblong, 7 mm. long, acute, hispid; leaves short-petiolate, coriaceous, the blades elliptic or ovate-elliptic, 5–8.5 cm. long, 2–4.5 cm. wide, abruptly acuminate, obtuse or acutish at the base, sparsely hispid or glabrate above, brown-hispid beneath with short hairs; panicles spikelike, 4 cm. long and 1 cm. wide, short-pedunculate, the rachis hispidulous, the flowers sessile, densely glomerate; calyx lobes short, rounded-ovate, appressed-hispidulous; corolla in bud 1.5 mm. long, densely ochraceous-strigillose.

52. CHOMELIA Jacq.

Chomelia spinosa Jacq. Sel. Stirp. Amer. 18. *pl. 13.* 1763. *Anisomeris spinosa* Schum. in E. & P. Nat. Pfl. 4^4: 98. 1891.

Valera, Trujillo, *Pittier 10772* (W, Y). Río de Sarare, 400 m., *Saer 521* (F). Also in Colombia and Panama.

A shrub or small tree, 3–6 m. high, armed with long stout spreading brownish spines; leaves petiolate, thin, the blades ovate or elliptic, acute or acuminate, acute at the base, pilosulous when young, especially beneath; flowers white or yellowish white, in small dense axillary slender-stalked cymes; corolla 2 cm. long; calyx tubular, the narrow lobes shorter than the tube; fruit drupaceous, oblong, black at maturity.

Chomelia tenuiflora Benth. in Hook. Journ. Bot. 3: 231. 1841.

Hills above Los Teques, Miranda, 1,500 m., *Pittier 11592* (P, W, Y). Middle Cotiza, near Caracas, 1,000–1,400 m., *Pittier 8046* (W). Without locality, *Moritz 211b* (L). Upper Cotiza, near Caracas, 1,400 m., *Pittier 7189* (W). Los Teques, 1,400–1,500 m., *Pittier 7529* (W). Colonia Tovar, 1,050 m., *Fendler 1754* (G), *1978* (G, K). Also in Colombia and the Guianas.

A shrub or small tree, similar to the preceding species; leaf blades ovate, acuminate, pilosulous, especially beneath; cymes short, axillary, few-flowered; calyx lobes linear or subulate, much longer than the tube; corolla densely sericeous outside.

53. ANISOMERIS Presl

Anisomeris malaneoides (Muell. Arg.), comb. nov. *Chomelia malaneoides* Muell. Arg. Flora 58: 452, 457. 1875.

Type collected in the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3317.*

A shrub, the branchlets at first appressed-pilose; stipules triangular-lanceolate, acuminate, 8 mm. long; leaves slender-petiolate, the blades 11–13 cm. long, 4–5 cm. wide, ovate-lanceolate, acuminate, subacute at the base, appressed-pilose on the veins; cymes

pedunculate, dense; calyx twice as long as the hypanthium, 4-parted, the lobes unequal; corolla sericeous-tomentulose, 6 mm. long, the lobes equaling or longer than the tube.

Anisomeris polyantha (Blake) Rusby, Bull. Torrey Club 52: 142. 1925. *Chomelia polyantha* Blake, Contr. U. S. Nat. Herb. 20: 532. 1924.

Type collected in forest at Guaremales, between Puerto Cabello and San Felipe, State of Carabobo, alt. 10–100 m., *Pittier 8856*. Mamo Electric Plant, Distrito Federal, *Pittier 11085* (B, W, Y). San Andrés de Caruao, Distrito Federal, *Pittier 11938* (W, Y).

A shrub or small tree, sometimes 6 m. high, often branched from the base; stipules 2.5 mm. long; leaves very shortly petiolate, the blades oval to oblong-obovate, 3–7 cm. long, abruptly acute, cuneate to rounded at the base, coriaceous, glabrous above, barbate beneath in the axils of the veins; peduncles axillary, glabrous, 1.5–2 cm. long, densely about 10-flowered; calyx 2–2.5 mm. long, sparsely strigillose, with 4 oblong or suborbicular teeth; corolla white, 2 cm. long, at first densely strigillose, the 4 lobes obtuse, 4.5 mm. long.

"Guacharaco." Flowers sweet-scented.

Anisomeris volubilis Standl. Field Mus. Bot. 8: 58. 1930.

Type from the Río Guainia (Río Negro), on inundated banks, *Spruce 3547* (K).

A scandent shrub 6 m. long, the young branchlets ferruginous-hirtellous; stipules lance-subulate; leaves short-petiolate, the blades firm-membranaceous, narrowly oblong or lance-oblong, 6–11 cm. long, long-acuminate, at the base acute or obtuse, hirtellous above along the costa, beneath ferruginous-hirtellous along the costa and appressed-pilose on the veins; peduncles axillary, 1.2–2.3 mm. long, ferruginous-hirtellous, 3-flowered; calyx 5 mm. long, strigose, cleft almost to the base into 4 linear divisions; corolla whitish, densely strigose, the filiform tube 2 cm. long, the 4 linear lobes 5–6 mm. long.

54. DUIDANIA, gen. nov.

Frutices vel arbores, ramulis crassis subteretibus vel angulatis glabris, internodiis elongatis; stipulae persistentes erectae breves connatae intrapetiolares abrupte acuminato-apiculatae; folia crasse coriacea breviter petiolata opposita, lamina late ovali vel rotundata apice late rotundata et apiculata; flores mediocres cymoso-corymbosi, inflorescentiis densissime multifloris terminalibus sessilibus, floribus dense congestis sessilibus vel brevissime pedicellatis, bracteis plerumque foliaceis; hypanthium parvum obovoideum; calyx 5-partitus, laciniis elongatis lineari-filiformibus; corolla hypocrateriformis puberula vel hispidula in alabastro apice obtusa, tubo gracili intus glabro, limbi lobis 5 anguste oblongis attenuatis valvatis obtusis; stamina 5 fauce corollae inserta, filamentis brevissimis, antheris linearibus dorsifixis acutis subexsertis; discus depressus; stylus filiformis glaber,

ramis 2 brevissimis; ovarium 2-loculare, loculis 1-ovulatis, ovulo medio septi affixo; capsula parva globosa coriacea dense puberula teres septicide bivalvis 2-sperma; semina hemisphaerica laevia.

Type species, *Duidania montana* Standl.

Duidania montana, sp. nov.—Folia plus minusve rugosa, basi obtusa vel late rotundata, supra glabra, subtus dense minute pallido-tomentella, marginibus subrevolutis; hypanthium dense ochraceo-puberulum, laciniis calycis erectis puberulis vel hispidulis.

A shrub or small tree, apparently densely branched, the branchlets thick, subterete or somewhat angulate, fuscous, glabrous, the latest internodes sometimes sparsely and minutely puberulent, the internodes mostly 1.5–2.5 cm. long; stipules erect, persistent, 4 mm. long, glabrous, connate for almost their whole length, the lobes acuminate-apiculate; leaves thick-coriaceous, short-petiolate, opposite, the stout petioles 2–3 mm. long, minutely puberulent or glabrate; leaf blades broadly oval or orbicular, 3.5–6.5 cm. long, 3–4.5 cm. wide, broadly rounded at the apex and shortly obtuse-apiculate, rounded or obtuse at the base, glabrous above, fuscous, somewhat lustrous, rugose, the veins more or less impressed, paler beneath, densely and minutely ochraceous-tomentulose, the costa slender, elevated, the veins about 12 pairs, very slender, prominulous, arcuate, ascending at a wide angle, the veinlets obscure, few, and laxly reticulate between the approximate veins, the margin often subrevolute; inflorescence terminal, cymose-corymbose, very dense and many-flowered, about 3 cm. long and 4–7 cm. broad, densely branched, the branches stout, sordid-puberulent, the bractlets mostly green and foliaceous, similar in texture to the leaves, varying from oval to narrowly oblong or oblanceolate, the flowers sessile and congested or very shortly pedicellate; hypanthium obovoid, 2–2.5 mm. long, densely ochraceous-puberulent; calyx 5-parted, the segments erect, linear-subulate, subequal, 5–7 mm. long, hispidulous or puberulent, persistent; corolla yellowish white, puberulent or hispidulous, the tube slender, scarcely dilated above, 8 mm. long, glabrous within, the 5 lobes narrowly oblong, spreading or ascending, valvate, attenuate, obtuse, 5–6 mm. long; stamens 5, inserted in the throat of the corolla, the filaments very short; anthers linear, semiexserted, 4 mm. long, dorsifixed at the middle, obtuse; disk depressed; style glabrous, 10 mm. long, the 2 branches oblong, very short; capsule septicidal, globose, 4–5 mm. long, rounded at the base, smooth, densely puberulent, 2-celled; seeds 1 in each cell, attached laterally to the middle of the thin septum, hemispheric, grayish, smooth.—Venezuela: Mount Duida, slopes of Ridge 25, alt. 1,650–1,800 m., *G. H. H. Tate 420* (herb. N. Y. Bot. Gard., type; photo. and fragm. in herb. Field Mus.).

Although it is represented by complete and fairly ample material, the tribal position of this plant is not altogether clear, especially because of the unusual structure of the fruit. There are very few

Rubiaceae that have capsular fruit with a single seed in each cell. The only American genus that seems to be related is *Ceratopyxis*, a shrub native in Cuba. That is referred to the *Chiococceae*, where, however, it is anomalous because of its dry fruit, that of most members of the tribe being fleshy. *Ceratopyxis* differs conspicuously from the Mount Duida plant in its compressed capsules and in having the stamens inserted at the base of the corolla tube, nor is it very similar in general appearance.

The peculiar, appressed, minute, pale tomentum found on the under surface of the leaves of *Duidania* is not a common type of pubescence in the family, being found chiefly in the genus *Guettarda*, to which I do not believe that *Duidania* is closely related.

55. ERITHALIS L.

Erithalis fruticosa L. Syst. Nat. ed. 10. 2: 930. 1759.

Reported from Juan Griego, Margarita Island, *Ernst* (Johnston, Proc. Bost. Soc. Nat. Hist. 34: 262. 1909). West Indies.

A resinous glabrous shrub or small tree; stipules persistent, 2 mm. long; leaves petiolate, coriaceous, the blades mostly obovate; flowers in axillary trichotomous corymbose panicles; calyx subtruncate; corolla white, 5 mm. long, the 5 lobes lance-oblong, the throat naked; fruit a globose drupe.

56. CHIOCOCCA L.

Chiococca alba (L.) Hitchc. Rept. Mo. Bot. Gard. 4: 94. 1893. *Lonicera alba* L. Sp. Pl. 175. 1753. *C. racemosa* L. Syst. Nat. ed. 10. 917. 1759. *C. brachiata* R. & P. Fl. Peruv. 2: 67. *pl. 219*. 1799.

Colonia Tovar, 600–900 m., *Fendler 542* (G, M). Manoa, *Rusby & Squires 215* (W). Aricagua, Mérida, 1,000 m., *Jahn 983* (W). Perijá, *Tejera 21* (Y). La Guaira (?), *André K.1107* (Y). Barquisimeto, Lara, *Saer 262* (Y). Macarao, Distrito Federal, *Pittier 11560* (P, Y). Cumaná, 900 m., *Funck 79* (L). El Tigre, Maracay, *Karsten* (L). San Esteban, *Mocquerys* (P). Duaca, *Mocquerys* (P). Widely distributed in tropical America.

A shrub, the branches often long and pendent or trailing, glabrous or nearly so; stipules 3 mm. long, persistent, appressed, acuminate; leaves short-petiolate, thick, the blades elliptic to ovate, obtusely acuminate, mostly 7–10 cm. long; flowers fragrant, white or yellowish, in axillary cymose panicles or sometimes racemose; corolla 6–8 mm. long, with short lobes; fruit white, fleshy, compressed, 4–8 mm. long.

Regarding the use of this plant in Brazil, the following information is given by G. Gardner (Travels in the Interior of Brazil, 39. 1849):

One of the remedies which they believe to be most efficacious (for snake bites) is that which is well known in Minas and other inland provinces by the name of Black Root (Raiz Preto), and Snake Root (Raiz de Cobra). It is the root of a common shrub, now well known to botanists by the name of *Chiococca anguifuga* (a synonym of *C. alba*). It has a pungent disagreeable smell, not unlike that of the common Valerian. Decoctions of this are given to drink, and poultices of it are applied to the wound. The Raiz Preto acts as a violent emetic and purgative, and also induces copious perspiration. If it operates freely in this manner, they augur favorably of the patient's recovery. Besides this plant they use many others. Snakes have generally a disagreeable musky smell, and it is a common opinion among the people that any plant possessing one similar is sure to be valuable in the cure of their bites.

Chiococca erubescens Wernham, Journ. Bot. 51: 322. 1913.

Without locality, *Funck & Schlim 149* (K, L). Colonia Tovar, 1,200 m., *Fendler 2604* (G), *1991* (G, K, M); at 1,800 m., *Fendler 1035* (G). Also in French Guiana.

A glabrous shrub; leaves chartaceous, short-petiolate, the blades ovate to elliptic or oblong, 14–20 cm. long, 7–12 cm. wide, shortly obtuse-acuminate; stipules short, apiculate; inflorescences simple, few-flowered, much shorter than the leaves, the pedicels 2 mm. long or less; calyx teeth short, broad, acutish, 2–2.5 mm. long; corolla yellow, the tube 9 mm. long, the lobes 2 mm. long.

Chiococca micrantha J. R. Johnston, Proc. Amer. Acad. 40: 696. 1905.

San Juan Mountain, Margarita Island, 400 m., *Johnston 115* (F, type collection). Puerto Cabello, *Curran & Haman 1154* (F, W). Colonia Tovar, *Fendler 543b* (G). Hacienda Panarigua, Distrito Federal, *Pittier 9202* (W, Y). Also in Colombia.

A shrub or small tree, branching from the base; leaves lanceolate, 3–5 cm. long, glabrous, acuminate, attenuate to the base; inflorescences about 3-flowered, the flowers pedicellate; corolla small, greenish or white, twice as long as the calyx; fruit white, 3 mm. broad.

Distinct in the small flowers and few-flowered inflorescences.

Chiococca nitida Benth. in Hook. Journ. Bot. 3: 236. 1841.

Arabupu, slopes of Mount Roraima, 1,360 m., *Tate 261* (Y). Type probably from Roraima.

Leaves oblong-elliptic, 7.5–12.5 cm. long, shortly obtuse-acuminate, coriaceous, shining, glabrous; stipules very short, scarcely apiculate; racemes axillary, binate, lax; calyx teeth very short; corolla subcampanulate, 8 mm. long; anthers included, the filaments villous.

57. COFFEA L.

Coffea arabica L. Sp. Pl. 172. 1753.

Coffee (*café*) is one of the most important agricultural products of Venezuela. For an account of its cultivation there see Pittier, Pl. Usual. Venez. 152. 1926.

Coffea liberica Bull ex Hiern, Trans. Linn. Soc. II. 1: 171. *pl. 24*. 1876.

Although Arabian coffee is the species grown generally in Venezuela as well as throughout tropical America, this species, Liberian coffee, is grown there upon a small scale.

58. IXORA L.

Ixora coccinea L. Sp. Pl. 110. 1753.

Caracas, *Tatavinow* (L). A native of tropical Asia, but cultivated commonly for ornament in tropical America.

A shrub with leathery, sessile or subsessile leaves; flowers orange-red, in dense corymbs; corolla tube long and slender, the short spreading lobes acute.

The shrub is a favorite ornamental plant in many parts of tropical America. It is exceptionally showy on account of its brilliantly colored blossoms.

Ixora duidae, sp. nov.—Arbor omnino glabra, ramulis gracilibus olivaceis subcompressis, internodiis elongatis; stipulae erectae persistentes lineari-lanceolatae striatae; folia breviter petiolata crasse membranacea opposita, lamina mediocri oblonga vel elliptico-oblonga acuminata basi acuta; inflorescentiae axillares cymoso-paniculatae laxe multiflorae longissime et graciliter pedunculatae, floribus breviter pedicellatis; calyx minutus breviter obtuse dentatus; corolla parva hypocrateriformis, lobis late oblongis obtusis tubo plus quam duplo brevioribus.

A tree, glabrous throughout, the branchlets slender, olivaceous, somewhat compressed, the internodes mostly 1.5–2.5 cm. long; stipules erect, greenish, subpersistent, lance-linear, long-attenuate, 8–11 mm. long, striate, more or less laciniate at the apex; leaves thick-membranaceous, short-petiolate, opposite, the slender petioles 5–8 mm. long; leaf blades oblong or elliptic-oblong, 9–13.5 cm. long, 2.5–5 cm. wide, acuminate, with subobtuse tip, acute at the base, green on the upper surface and slightly lustrous, the venation somewhat elevated, slightly paler beneath, the costa slender, prominent, the veins about 10 pairs, slender, prominent, divergent at a wide angle, slightly arcuate, anastomosing close to the margin, the veinlets prominulous, closely reticulate; inflorescences axillary, cymose-

paniculate, very lax, many-flowered, 3–5 cm. long and up to 8 cm. broad, trichotomous at the base and dichotomous above, the lowest branches very slender, divaricate, straight, stiff, the very slender peduncles 5–11 cm. long, probably pendent; bracts minute or obsolete, triangular, less than 1 mm. long; flowers sessile or on pedicels 2 mm. long or less; hypanthium obovoid, 0.6 mm. long, the calyx half as long, obtusely dentate; corolla white, the very slender tube 6–11 mm. long, scarcely dilated in the throat, the lobes broadly oblong, obtuse, 2.5–3 mm. long, spreading.—Venezuela: Hillside at Foothills Camp, Mount Duida, alt. 225 m., *G. H. H. Tate 392* (herb. N. Y. Bot. Gard., type).

The leaves suggest those of the Brazilian *Ixora membranacea* Muell. Arg., but that has a quite different, terminal inflorescence. Very few species of *Ixora* with axillary inflorescence are known, and this plant does not seem to be closely related to any of the American ones.

Ixora ferrea (Jacq.) Benth. Linnaea 23: 447. 1850. *Sideroxyloides ferreum* Jacq. Sel. Stirp. 19. *pl. 175, f. 9.* 1763. *Siderodendron ferreum* J. F. Gmel. Syst. Veg. 242. 1791.

Without locality, *Fendler 2557* (M). Also in the West Indies and the Guianas.

A glabrous shrub or small tree; stipules subulate; leaves short-petiolate, the blades oblong, acute or short-acuminate; corymbs axillary or lateral, sessile, dense and few-flowered; corolla pink, the slender tube 8 mm. long, the lobes oval, scarcely one-third as long.

Ixora Funckii Wernham, Journ. Bot. 50: 243. 1912.

Prov. Carabobo, May, 1846, *Funck & Schlim 640* (P, type collection). Between Puerto Cabello and San Felipe, Carabobo, 100–500 m., *Pittier 8962.*

Glabrous; stipules subpersistent, setaceous-linear, 6 mm. long; leaves short-petiolate or sessile, elliptic, 13 cm. long and 5 cm. wide, acute; cymes few-flowered, very lax, terminating short branches, pedunculate, the pedicels 1–2 cm. long; calyx teeth 4, subulate; corolla white, glabrous, the tube 2.2–2.8 cm. long, the lobes oblong, acute, 1 cm. long.

Ixora leptosolen Blake ex Knuth, Init. Fl. Venez. 670. 1928.—This is a name only, based on *Pittier 8929* from Valencia. The specimens represent a cultivated plant, presumably of Old World origin, whose identity is uncertain.

Ixora parviflora Vahl, Symb. Bot. 3: 11. *pl. 52.* 1794.

Valencia, cultivated, *Pittier 8155* (W). A native of the Indian region, often grown for ornament in tropical America.

A shrub or small tree; leaves subsessile, oblong or elliptic, obtuse, 7.5–15 cm. long; cymes sessile, dense and many-flowered; corolla white, the tube about 8 mm. long.

Ixora Thwaitesii Hook. f. is reported by Knuth (Init. Fl. Venez. 670. 1928) as collected at Caja de Agua, Valencia, *Pittier 8160.* I have not seen, recently at least, the collection upon which the report is based. Probably the plant is the one which should be known as *Ixora Finlaysoniana* Wall. This is an exotic species with clusters of handsome white flowers, grown commonly for ornament in tropical America.

59. MORINDA L.

Morinda peduncularis HBK. Nov. Gen. & Sp. 3: 380. 1819.

Type collected in the forests of the Orinoco near San Borja, *Humboldt & Bonpland.*

Branchlets glabrous; leaves short-petiolate, membranaceous, the blades elliptic-oblong, 12.5 cm. long, 5.5 cm. wide, acuminate, narrowed at the base, glabrous, shining above and bright green, paler beneath; stipules acuminate, persistent; heads axillary, subglobose, the peduncles 3.5 cm. long, finely pubescent; calyx obsoletely 5-dentate, subpuberulent; corolla white, glabrous, the lobes linear.

Morinda roioc L. Sp. Pl. 176. 1753.

Reported (Knuth, Init. Fl. Venez. 676. 1928) from Paparo, *Pittier 6323.* Extending to Central America and the West Indies.

A shrub or small tree, usually in coastal thickets, often subscandent; leaf blades mostly linear-oblong to oblanceolate-oblong, acute or acuminate, glabrous or nearly so; flowers white, 1 cm. long, the small dense heads on peduncles 3–10 mm. long.

"Pepa de ratón."

60. APPUNIA Hook. f.

Appunia angulata (Benth.) Baill. Hist. Pl. 7: 415. 1880. *Ixora angulata* Benth. ex B. & H. Gen. Pl. 2: 114. 1873. *Bellynkxia angulata* Muell. Arg. Flora 58: 465, 475. 1875.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, along the Río Negro, *Spruce 3337.*

A glabrous shrub, the branches tetragonous; upper leaves by the abortion of one of the pair falsely alternate; stipules 2–2.5 mm. long, triangular, distinct, entire; leaves short-petiolate, the blades rhombic-ovate or lance-ovate, 11–15 cm. long, 4–6 cm. wide, short-cuspidate, acute at the base, membranaceous-coriaceous, with 5–6 pairs of veins; inflorescence terminal, pedunculate, the flowers collected in a 7–20-flowered head 6–12 mm. in diameter; calyx tubular-cupular, truncate, entire or obsoletely 4-denticulate; ovary 4-celled, the cells 1-ovulate.

Appunia tenuiflora (Benth.) Hook. f. in B. & H. Gen. Pl. 2: 120. 1873. *Coffea tenuiflora* Benth. in Hook. Journ. Bot. 3: 232. 1841.

Mene Grande, Zulia, *Pittier 10585* (W, Y). Without locality, *Otto 1007* (F). Also in British Guiana.

A shrub 1.5 m. high, the branchlets puberulent; stipules broad, shortly subulate-acuminate; leaf blades ovate, 5–7.5 cm. long, acuminate, cuneate at the base, puberulent beneath; peduncles solitary, axillary, elongate, the flowers aggregate-corymbose; corolla white, 10 mm. long, the 5 lobes equaling the tube, linear; calyx shallowly 5-dentate; ovary 2-celled; fruit dicoccous, black, the cells 1-seeded.

61. COUSSAREA Aubl.

Coussarea grandis Muell. Arg. in Mart. Fl. Bras. 6^5: 100. 1881.

Type from San Carlos on the Río Negro, *Spruce 3458* (K), *3485* (K).

A glabrous shrub or small tree; stipules short, broadly obtuse, connate into a tube; leaves short-petiolate, the blades coriaceous-membranaceous, elliptic-lanceolate, 15–23 cm. long, 5–8 cm. wide, long-acuminate, acute at the base; flowers ternate at the ends of the branches; calyx truncate, with the hypanthium 5–6 mm. long; corolla 4.5–5 cm. long, puberulent, the lobes almost as long as the tube; fruit oblong-ellipsoid, 3 cm. long, acute at each end.

Coussarea leptoloba (B. & H.) Muell. Arg. Flora 58: 468. 1875. *Faramea leptoloba* B. & H. Gen. Pl. 2: 121. 1873.

Described from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3141* (photo. in F); and San Carlos on the Río Negro, *Spruce 3141*.

Branchlets glabrous; stipules short-connate, at the apex multidentate, cuspidate, 2.5–3 mm. long; leaves petiolate, rigid-membranaceous, the blades elliptic-lanceolate, 15–23 cm. long, 5–8 cm. wide, cuspidate-acuminate, at first pubescent on the veins, with 13–15 pairs of veins; cymes terminal, sessile, scarcely longer than the petioles, the flowers sessile; calyx lobate, the lobes narrowly triangular; corolla puberulent, 3 cm. long, the lobes slightly shorter than the tube.

Coussarea Moritziana (Benth.), comb. nov. *Faramea Moritziana* Benth. Linnaea 23: 451. 1850. *C. pentamera* Karst. Fl. Columb. 2: 13. *pl. 107*. 1862.

Colonia Tovar, *Moritz 1651* (F, G, Y, type collection). Type of *C. pentamera* from Puerto Cabello, *Karsten*. Near Colonia Tovar, 1,200 m., *Fendler 1987* (G, K); at 1,800 m., *Fendler 577* (G, M, Y), *577b* (G, M, Y). Río Tuy, below Colonia Tovar, 1,680 m., Aragua, in humid forest, *Pittier 11386* (W, Y). Galipán, 1,600 m., *Pittier 9910* (Y).

A tree 6–9 m. high, nearly glabrous; stipules short and broad, more or less cartilaginous; leaves petiolate, the blades ovate to oblong, mostly 10–15 cm. long, obtuse, acute or subobtuse at the base; panicles thyrsoid or subcorymbose, dense, the branches opposite, cymose-umbellate above; calyx truncate; corolla tube 8 mm. long, the lobes half as long; fruit white, ovoid, 1 cm. long or larger.

Coussarea Sprucei, sp. nov.—Arbor tenuis ramosa 6–9-metralis praeter inflorescentiam omnino glabra, ramulis gracilibus teretibus vel in sicco subangulatis pallide olivaceis, internodiis elongatis; stipulae subpersistentes crassae rotundato-ovatae 2–2.5 mm. longae granulosae; folia breviter petiolata opposita subcoriacea, petiolo crassiusculo 5–12 mm. longo; lamina oblonga vel elliptico-oblonga 9–20 cm. longa 3.5–8.5 cm. lata abrupte longe caudato-acuminata, acumine late lineari 1–1.5 cm. longo obtuso, basi acuta vel interdum prope basin abrupte contracta et breviter decurrens, supra in sicco viridis vel fusco-viridis, saepe lucida, costa venisque prominentibus, subtus paullo pallidior, costa gracili elevata, nervis lateralibus utroque latere 5–9 gracilibus angulo semirecto vel latiore divergentibus gracilibus leviter curvis vel fere rectis remote a margine conjunctis, nervulis prominulis laxe reticulatis; inflorescentia terminalis sessilis vel usque ad 3.5 cm. longe pedunculata erecta thyrsoideo-paniculata 2–5 cm. longa et 1–5 cm. lata densiuscule multiflora, ramis pallidis verticillatis vel alternis crassiusculis glabris vel obscure pruinoso-puberulis, floribus odoriferis plerumque subumbellatis, pedicellis crassiusculis 1–3 mm. longis minutissime puberulis vel glabratis, bracteis minutis vel obsoletis; hypanthium obovoideum 1.5 mm. longum puberulum vel glabratum, calyce campanulato 1.5 mm. longo et aequilato truncato remote obscure denticulato minutissime puberulo vel glabrato; corolla extus minutissime puberula vel glabrata in alabastro 4-angulata attenuata, lobis apice breviter liberis, tubo 4.5 mm. longo supra paullo dilatato, lobis 4 lineari-oblongis acute attenuatis 4.5–5 mm. longis patentibus intus glabris; antherae lineares semiexsertae; stylus breviter exsertus.—Venezuela: In ripis Casiquiare supra Vasivae ostiam, January, 1854, *R. Spruce 3282* (herb. Kew., type).—Brazil: Prope Panure ad Rio Uaupes, October, 1852, *Spruce 2486* (herb. Kew.).

There are slight differences between the two collections cited, but there is little doubt that they represent the same species. In general appearance *Coussarea Sprucei* is not unlike *C. paniculata* (Vahl) Standl., but in the latter the corolla is obtuse in bud, to mention only one of several distinguishing characters.

62. FARAMEA Aubl.

Sulzeria odorata R. & S. Syst. Veg. 4: lx, 707. 1819. *Anabata odorata* Humb. ex R. & S. op. cit. 707. 1819.

This plant is the type of the genus *Sulzeria* R. & S. The type specimen was collected on the Orinoco near Esmeralda by Humboldt and Bonpland. The genus is mentioned by Bentham and Hooker under the Loganiaceae, but Knuth (Init. Fl. Venez. 676. 1928) lists it among the Rubiaceae, for what reason he does not explain, with the suggestion that it may be a Faramea. So far as the brief description indicates, the plant may well belong to that genus. It is described as scandent. The plant does not seem to be mentioned in the detailed account of the HBK. collections.

Faramea angustifolia Spruce ex B. & H. Gen. Pl. 2: 121. 1873, nomen; Muell. Arg. Flora 58: 471. 1875.

Type collected near San Carlos on the Río Negro, *Spruce 3075*. Along Lora River, river bank, *Pittier 10948* (P), *10958* (B). Prov. Carabobo, 1,200 m., *Funck & Schlim 541* (P). Also in Brazil and the Guianas.

Stipules connate into a long narrow biaristate sheath; leaf blades membranaceous, elongate-lanceolate or lance-oblong, 8–17 cm. long, 1–3 cm. wide, long-acuminate, glabrous, with 10–13 pairs of almost perpendicular veins; cymes terminal, pedunculate, umbellately 5-rayed, the flowers umbellate; calyx campanulate, minutely 4-dentate; corolla white, 8–9 mm. long, glabrous, the 4 lobes half as long as the tube; fruit globose, 8 mm. broad.

Faramea Killipii Standl. Field Mus. Bot. 7: 73. 1930.

Prov. Mérida, 2,250 m., *Funck & Schlim 1212* (L, P). Tabay, 2,600 m., in forest, *Gehriger 429* (F). Also in the mountains of Colombia.

A large shrub or small tree 3.5–8 m. high, glabrous; stipules as much as 2 cm. long, long-connate, attenuate, deciduous; leaves short-petiolate, subcoriaceous, the blades oblong or elliptic-oblong, 8–14 cm. long, 3–5.5 cm. wide, abruptly short-acuminate, obtuse or acute at the base, with about 12 pairs of veins; inflorescence cymose-corymbose, densely many-flowered, sessile and branched from the base or pedunculate, the pedicels 6–8 mm. long; corolla lobes white, the tube violet; fruit purple-blue, transversely oval, 10–12 mm. broad.

Faramea occidentalis (L.) A. Rich. Mém. Soc. Hist. Nat. Paris 5: 176. 1834. *Ixora occidentalis* L. Syst. Nat. ed. 10. 2: 893. 1759. *Faramea odoratissima* DC. Prodr. 4: 496. 1830.

Canuabi, near Urama, Carabobo, *Pittier 12192* (F, M, W). Perijá, Zulia, *Tejera 58* (W). Puerto Cruz, Distrito Federal, 900 m., *Whitford 55* (G). Limón, 600 m., *Jahn 481* (W). Cumaná, *Funck 632* (K, L). Guaremales, Carabobo, *Pittier 8910* (W). Cristóbal Colón, *Broadway 446* (W). Without locality, *Moritz 468* (L). Prov. Carabobo, *Funck & Schlim 568* (P). Extending to Colombia, Mexico, and the West Indies.

A slender glabrous shrub or small tree, sometimes 8 m. high; stipules aristate; leaves short-petiolate, thin, the blades oblong or lance-oblong, short-acuminate, acute at the base; inflorescences terminal and axillary, few-flowered, corymbose or umbellate, the flowers long-pedicellate, white, fragrant; corolla glabrous, 2 cm. long, the linear-lanceolate lobes equaling or longer than the tube; fruit 1.5 cm. broad, broader than long.

"Jazmín de estrella," "cafecillo de danta."

Faramea orinocensis, sp. nov.—Frutex 3-metralis subdense ut videtur ramosus omnino glaber, ramulis gracilibus rigidis olivaceis subteretibus, vetustioribus pallide brunnescentibus, internodiis foliis brevioribus; stipulae deciduae minutae distinctae vel vix connatae e basi semiorbiculari abrupte in aristam rigidam erectam 2 mm. longam desinentes; folia breviter petiolata opposita coriacea flavescenti-viridia, petiolo crassiusculo 3–4 mm. longo; lamina ovali-oblonga vel oblonga saepissime paullo supra medium latissima 4.5–7.5 cm. longa 2–3.8 cm. lata acuta vel saepius abrupte breviter producta, acumine late triangulari obtuso, basi acuta, costa venisque supra prominulis, costa subtus prominente gracili, nervis lateralibus utroque latere c. 9 gracillimis prominulis angulo lato abeuntibus leviter arcuatis vel fere rectis paullo antem marginem conjunctis, nervulis prominulis arcte reticulatis; inflorescentia terminalis erecta c. 3 cm. longe pedunculata 3–4 cm. lata basi umbellatim ramosa, radiis 4–5 late adscendentibus c. 1 cm. longis gracilibus rectis, apice umbellatim 2–3-floris, bracteis obsoletis, pedicellis gracilibus rectis 6–9 mm. longis, inflorescentiis rare simpliciter umbellatis et paucifloris; hypanthium late obovoideum 1.2 mm. longum basi obtusiusculum; calyx tubuloso-campanulatus c. 2.7 mm. longus et 2 mm. latus truncatus; corolla tetramera alba, tubo gracili 13 mm. longo supra paullo dilatato prope medium 1.2 mm. lato, lobis 15 mm. longis e basi anguste triangulari longe lineari-attenuatis patentibus intus glabris; antherae inclusae; corolla in alabastro linearis versus apicem angustam longissime attenuata.—Venezuela: Banks of the Orinoco, Raudal de Atures, June 24, 1887, *M. Gaillard 18* (herb. Paris, type).

"Petals slightly violaceous outside; flowers with the odor of vanilla, this conspicuous about sunset."

In many respects the Venezuelan plant agrees with *Faramea hyacinthina* Mart., of Bahia, Brazil, but in that the leaves are cuspidate, and the corolla lobes slightly shorter than the tube. From the somewhat similar *F. occidentalis* (L.) A. Rich. the present species is distinguished readily by its chiefly obtuse or acutish leaves.

Faramea sessilifolia (HBK.) DC. Prodr. 4: 497. 1830. *Tetramerium sessilifolium* HBK. Nov. Gen. & Sp. 3: 374. 1819. *Ixora sessilifolia* Spreng. Syst. Veg. 1: 409. 1825.

Type collected in forests of the Orinoco between Maipures and San Fernando de Atabapo, *Humboldt & Bonpland.*

A glabrous tree; leaves sessile, oblong, coriaceous, 7.5–10 cm. long, strongly acuminate, cordate, reticulate-veined, shining, paler beneath; stipules ovate, acuminate-subulate; corymbs terminal, sessile, trichotomous, divaricately branched, 7.5–10 cm. long, the flowers ternate, the central one sessile, the lateral ones very shortly pedicellate; corolla blue, glabrous, the 4 lobes ovate, acute.

Faramea torquata Muell. Arg. Flora 58: 471, 478. 1875; in Mart. Fl. Bras. 6^5: 131. 1881.

Region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3387* (S, type collection).

A glabrous shrub; stipules orbicular-ovate, rounded-obtuse, short-mucronate, 2–4 mm. long; leaves petiolate, coriaceous, the blades ovate-lanceolate or elliptic-lanceolate, 10–22 cm. long, 3.5–8 cm. wide, caudate-cuspidate, subacute at the base; cymes pedunculate, umbellately divided, the rays usually 5, each with 3–5 flowers at the apex, the flowers pedicellate; corolla glabrous, 13 mm. long, the lobes scarcely one-third as long as the tube.

63. PAGAMEA Aubl.

Pagamea conferta, sp. nov.—Frutex depressus, ramulis crassis, internodiis brevissimis; stipulae in vaginam truncatam connatae, vagina setis paucis elongatis onusta; folia coriacea brevissime petiolata, lamina lanceolato-oblonga vel anguste lanceolata longissime acuminata subtus breviter pilosa; flores capitati, capitulis axillaribus parvis brevissime pedunculatis; calyx minute pilosus, laciniis anguste oblongo-triangularibus attenuatis hypanthio longioribus.

A low shrub, sprawling over rocks, the older branches stout, terete, densely covered with leaf scars, fuscous or brownish, the young branchlets very densely leafy and wholly concealed by the more or less persistent stipule sheaths; stipules connate into a sheath about 4 mm. long, this truncate, densely puberulent, bearing at the margin 4 or more subulate setae 2.5–4 mm. long; leaves very shortly petiolate, opposite, the petiole 2–3 mm. long, stout, minutely pilose; leaf blades narrowly lance-oblong or narrowly lanceolate, 4.5–6.5 cm. long, 1–2 cm. wide, very long and narrowly acuminate, obtuse or narrowly rounded at the base, the margins revolute, lustrous on the upper surface, pale-puncticulate, sparsely pilosulous along the prominulous costa, elsewhere glabrous, the veins obsolete, beneath pale, pilose along the costa and sometimes on the veins with short soft whitish hairs, the costa slender, elevated, the veins about 8 pairs, ascending at an acute angle, evident but scarcely elevated; flowers subcapitate, the heads axillary, solitary, few-flowered, about 6 mm. in diameter, the peduncles stout, compressed, sparsely short-pilose, only 2–3 mm. long, the flowers closely sessile; hypanthium obpyramidal, 1.2 mm. long, minutely puberulent; calyx 1.5–2 mm.

long, minutely pilose, the segments narrowly oblong-triangular, attenuate, suberect, greenish, persistent; corolla white, 4-parted, sparsely puberulent, very obtuse in bud, 3.5 mm. long, the lobes oblong, obtuse, twice as long as the tube, densely puberulent within; anthers short-exserted, oval, 0.8–0.9 mm. long.—Venezuela: Mount Duida, dry rocky slopes of the Savanna Hills, alt. 1,340 m., *G. H. H. Tate 794* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.).

This plant is closely related, uncomfortably so in fact, to *P. capitata* Benth., a common species of the lowlands of British Guiana. It seems reasonably distinct, however, in its smaller and more densely pubescent leaves, borne on very short petioles, and also in its nearly sessile inflorescences, the peduncles in *P. capitata* being usually 1–3 cm. long.

Pagamea coriacea Spruce ex Benth. Journ. Linn. Soc. 1: 110. 1857; Prog. in Mart. Fl. Bras. 6[1]: 287. 1868.

Collected by Spruce near Esmeralda on the Orinoco. Also in adjacent Brazil.

A tree 6–7.5 m. high, glabrous; leaves petiolate, coriaceous, the blades oval-elliptic or oblong-elliptic, large, subobtuse, about 15 cm. long, the veins 4–7 pairs; stipule sheath 2.5 cm. long, with short teeth; panicles about equaling the leaves, the flower clusters interruptedly spicate, the flowers small and white; calyx 4-dentate, the teeth ovate, acute; corolla lobes paleaceous-hirtous within; fruit 2-seeded.

Pagamea garryoides, sp. nov.—Frutex humilis, ramulis subteretibus vel tetragonis stipulis persistentibus fere occultis; stipulae dense albo-pilosae; folia coriacea breviter petiolata, lamina elliptica vel oblongo-elliptica basi et apice acuta, supra lucida primo subadpresso-pilosa, subtus pallida dense pilis brevibus patentibus vel subadpressis pilosa; flores dense capitato-congesti, capitulis terminalibus et ex axillis superioribus nascentibus, pedunculis simplicibus vel trichotomis elongatis; calycis laciniae anguste oblongo-triangulares pilosulae attenuatae; corolla 5-fida, laciniis tubo duplo longioribus extus pilosulis intus albo-villosis.

A low shrub, apparently densely branched, the older branches subterete, ochraceous or brownish, commonly almost hidden by the persistent stipules, the internodes usually very short but occasionally elongate and then densely pilose with long whitish hairs; stipules connate into a subtruncate, densely sericeous sheath sometimes 7 mm. long but usually much shorter; leaves short-petiolate, coriaceous, opposite, the petioles stout, sometimes 5–7 but often only 2–3 mm. long, densely white-pilose; leaf blades elliptic or less frequently oblong-elliptic, 2–4 cm. long, 1–1.8 cm. wide, acute or subobtuse, at the base obtuse or acute, lustrous and deep green above, at least when young covered with subappressed white hairs, beneath paler,

densely pilose with rather long, spreading or less frequently subappressed, whitish hairs, the stout costa rather prominent, the veins obsolete; flowers sessile, crowded in dense subglobose many-flowered heads 7–10 mm. in diameter, usually 3 heads on an elongate terminal peduncle, or the peduncles sometimes axillary and simple, the primary peduncles 1.5–3.5 cm. long, the secondary ones mostly less than 1 cm. long, densely pilose, the primary peduncle usually leafy-bracted at the insertion of the secondary peduncles; hypanthium obpyramidal, 1.2 mm. long, minutely appressed-pilose; calyx 2.2 mm. long, minutely hirtellous, the segments narrowly oblong-triangular, attenuate, acute, 3-nerved; corolla blue or dull purple, the tube almost glabrous, 2 mm. long, the 5 lobes spreading or somewhat recurved, triangular-lanceolate, 2 mm. long, acute, minutely pilose outside, densely white-villous within; stamens exserted, the filaments inserted in the corolla throat, 1.5 mm. long, the anthers linear-oblong, 1 mm. long.—Venezuela: Mount Duida, rocks above Caño Negro, Savanna Hills, alt. 1,260 m., *G. H. H. Tate 819* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Brocchinia Hills, 1,350 m., *Tate 585* (Y). Slopes of Ridge 24, 1,770 m., *Tate 464* (Y).

In its copiously pubescent leaves this differs conspicuously from most species of the genus. According to the collector, the leaves when fresh are stiff and shining.

Pagamea hirsuta Spruce ex Benth. Journ. Linn. Soc. 1: 111. 1857; Prog. in Mart. Fl. Bras. 6[1]: 287. 1868.

Collected near San Carlos on the Río Negro, *Spruce 3137;* also on the Río Negro above the mouth of the Casiquiare.

Rufous-hirsute throughout; leaves short-petiolate, firm-membranaceous, the blades obovate-elliptic, short-acuminate, 15–20 cm. long, 5–6.5 cm. wide, with 8–10 pairs of veins, shining above, paler beneath; stipules connate, 3.5 cm. long, caducous; flower clusters few, sessile or short-pedunculate at the summit of the peduncle; calyx subentire; corolla 3 mm. long, the narrow lobes acute, paleaceous-villous within; fruit subdidymous.

Pagamea montana Gleason & Standl., sp. nov.—Frutex vel arbuscula glabra, internodiis abbreviatis; stipulae longe connatae, vagina truncata apice dentibus 8 brevibus onusta; folia coriacea petiolata, lamina oblonga vel anguste elliptico-oblonga basi et apice acuta; pedunculi terminales et ex axillis superioribus nascentes elongati, floribus in capitulum simplicem parvum dense congestis sessilibus 4–5-meris; calyx breviter dentatus, dentibus late triangularibus acutiusculis; corollae lobi lanceolati tubo duplo longiores intus dense albo-villosi.

A shrub or a small tree, sometimes 7.5 m. high, glabrous except for the corollas, the branches subterete, fuscous or brownish, the young branchlets often 4-angled, the internodes very short; stipules connate into a sheath 7–9 mm. long, this narrow, brown, bearing at the apex 4 slender teeth 0.6 mm. long and 4 others 1–1.4 mm. long,

the stipules soon deciduous; leaves opposite, short-petiolate, the petioles slender or stout, 3–7 mm. long; leaf blades thick-coriaceous, oblong or narrowly elliptic-oblong, 3–5.5 cm. long, 1–1.5 cm. wide, acute, gradually attenuate to the base, somewhat lustrous above, the veins obscure, beneath slightly paler, the slender costa elevated, the veins obsolete; peduncles terminal and produced from the upper leaf axils, 1–2.5 cm. long, compressed, the numerous sessile flowers crowded in a dense headlike cluster about 8 mm. in diameter, 4–5-parted; hypanthium subglobose, the calyx 1 mm. long, shallowly dentate, the teeth broadly triangular, acutish, separated by broad rounded sinuses; corolla glabrous outside, the tube 1.3 mm. long, the lobes lanceolate, fleshy, 3.2 mm. long, spreading, densely white-villous within; stamens inserted in the throat of the corolla, the erect filaments 1.4 mm. long, the anthers oblong-elliptic, 1.4 mm. long; style 2.7 mm. long, minutely pubescent, the 2 stigmas narrowly elliptic, almost 1 mm. long.—Venezuela: Mount Duida, dry ridge tops, Savanna Hills, alt. 1,340 m., *G. H. H. Tate 803* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Agüita, 1,140 m., *Tate 926* (F, Y).

This species is related to *P. coriacea* Benth., which grows in the lowlands of the same general region. The latter has obtuse leaves, ovate calyx lobes, longer stipules, and branched peduncles.

Pagamea sessiliflora Spruce ex Benth. Journ. Linn. Soc. 1: 110. 1857; Prog. in Mart. Fl. Bras. 6[1]: 285. 1868.

Type collected near San Carlos on the Río Negro, *Spruce 3045* (photo. in F).

A shrub or small tree 2–4.5 m. high, glabrous; stipules broad, membranaceous, caducous; leaves short-petiolate, membranaceous, the blades oblong-lanceolate, acuminate, 5–6.5 cm. long, 1.5–2 cm. wide, acuminate; flower clusters sessile among the upper leaves; calyx 4–5-dentate, the teeth linear; corolla pale green, the lobes villous within; fruit ovoid-globose, 2-seeded, 6–8 mm. in diameter.

Pagamea thyrsiflora Spruce ex Benth. Journ. Linn. Soc. 1: 110. 1857; Prog. in Mart. Fl. Bras. 6[1]: 286. *pl. 81, f. 1.* 1868.

Type collected in humid forest near San Carlos on the Río Negro, *Spruce 2957.*

A shrub 2–4.5 m. high, glabrous, densely branched; leaves petiolate, the blades lanceolate or ovate-lanceolate, acuminate at each end; flower clusters pedunculate, thyrsoid-paniculate; calyx lobes ovate, acute; corolla white, the lobes covered within with very short paleae; fruit 5-celled, 5-seeded, obovoid-globose.

64. GEOPHILA Don

Geophila herbacea (Jacq.) Schum. in E. & P. Nat. Pfl. 4[4]: 119. 1891. *Psychotria herbacea* Jacq. Enum. Pl. Carib. 16. 1760.

Cephaelis reniformis HBK. Nov. Gen. & Sp. 3: 377. 1819. *Mapouria herbacea* Muell. Arg. in Mart. Fl. Bras. 6[5]: 427. 1881.

Mount Duida, foothills camp, 225 m., *Tate 395* (Y). Near San Fernando de Atabapo, *Gaillard 270* (P). Reported by Mueller (loc. cit.) from the mouth of the Río Casiquiare, *Spruce 3524*. *Cephaelis reniformis* was based in part upon a specimen from Javita, *Humboldt & Bonpland*. The species is widely distributed in the lowlands of tropical America.

A creeping perennial herb; leaves slender-petioled, the blades rounded or ovate, cordate, obtuse, sparsely pilose beneath on the veins or almost glabrous; flowers capitate, the heads small, few-flowered, pedunculate, surrounded by an involucre of triangular green bracts 5–7 mm. long; calyx 2.5–3 mm. long, the lobes lanceolate, acuminate; corolla white, 11 mm. long, hispidulous; fruits red or at maturity black, 5 mm. long, the nutlets usually spirally contorted.

The plant is one of the common weeds in the lowlands of tropical America, often growing in great abundance in banana plantations. It appears to be rare in northern Venezuela, however, or else it has been disregarded by collectors, which is not probable.

Geophila tenuis (Muell. Arg.) Standl. Field Mus. Bot. 7: 77. 1930. *Mapouria tenuis* Muell. Arg. in Mart. Fl. Bras. 6[5]: 425. 1881.

Type collected along the Río Negro above the mouth of the Río Casiquiare, *Spruce 3524*.

Plants usually smaller and more slender than in *G. herbacea;* leaf blades ovate, acute, 12–20 mm. long, cordate at the base, densely villous above; heads pedunculate, 2–3-flowered, the outer bracts lanceolate, 3-fid; pedicels equaling the hypanthium; calyx lobes lance-linear, about three times as long as the ovary.

Geophila trichogyne (Muell. Arg.), comb. nov. *Mapouria trichogyne* Muell. Arg. in Mart. Fl. Bras. 6[5]: 426. 1881.

Esmeralda, 100 m., *Tate 1006* (Y). Also in the Amazon Valley of Brazil and Peru.

Stipules orbicular-ovate, obtuse; leaf blades triangular-ovate, 3.5–5.5 cm. long or larger, acuminate, cordate at the base, villous; cymes short-pedunculate, 5–8-flowered, the outer bracts ovate-lanceolate, acuminate, trifid, the pedicels equaling the hypanthium; calyx lobes twice as long as the villous hypanthium, lance-linear, villous-ciliate.

65. CEPHAELIS Sw.

Cephaelis aneurophylla Standl. Field Mus. Bot. 8: 63. 1930.

Between Maracay and Choroni, 750 m., *Fendler 1979* (G, type; K).

Branches glabrous; leaves very shortly petiolate, subcoriaceous, the blades glabrous, narrowly oblanceolate-oblong or narrowly elliptic-oblong, 8–14 cm. long, 2.5–4.5 cm. wide, acuminate, long-

attenuate to the truncate or subcordate base, with rounded auricles, conspicuously marginate, whitish beneath, the veins obsolete; inflorescences axillary, long-pedunculate, composed of 3 pedunculate heads; heads dense, many-flowered, 1 cm. broad, the outer bracts rounded, 7–8 mm. long; calyx 5-parted, the lobes narrowly oblong, obtuse; fruit red, oval or subglobose, 7–9 mm. long, glabrous, the nutlets obtusely 3-costate.

Cephaelis anisopoda, sp. nov.—Frutex 2–4-metralis ut videtur copiose ramosus, ramulis gracilibus subteretibus ochraceis, novellis dense sordide puberulis, internodiis brevibus vel elongatis; stipulae persistentes in vaginam 2 mm. longam dense puberulam connatae, vagina in lobos 4 lineares erectos 3 mm. longos puberulos desinente; folia parva crasse membranacea breviter petiolata opposita, petiolo gracili 3–8 mm. longo puberulo; lamina anguste lanceolato-oblonga prope medium latissima 4.5–8 cm. longa, 0.8–1.8 cm. lata longissime attenuato-acuminata, acumine angustissimo, basin versus longe attenuata, supra in sicco fusco-viridis, glabra, costa venisque non elevatis, subtus paullo pallidior, ad costam gracilem prominentem hispidulo-puberula, aliter glabra, nervis lateralibus utroque latere c. 9 obliquis tenerrimis prominulis angulo lato adscendentibus arcuatis in marginem desinentibus, nervulis paucis inconspicuis laxe vel non reticulatis; flores capitati sessiles, capitulis numerosis pedunculatis vel sessilibus solitariis vel rarius geminatis c. 1 cm. latis, pedunculis valde inaequalibus usque ad 8 mm. longis interdum recurvis crassiusculis puberulis, bracteis subaequalibus vel interioribus paullo brevioribus 5–6 mm. longis lanceolato-oblongis acutis vel acutiusculis in sicco pallidis, exterioribus dorso puberulis, interioribus fere aequilatis glabris vel glabratis, capitulis dense paucifloris; hypanthium turbinatum glabrum 1 mm. longum, calyce aequilongo profunde dentato, dentibus triangularibus acutis glabris; corolla alba extus glabra in alabastro apice obtusa 5–7 mm. longa, tubo crassiusculo recto, lobis 4 patentibus oblongis obtusis intus glabris tubo duplo brevioribus; antherae semiexsertae; stylus breviter exsertus.—Venezuela: Tabay, alt. 2,300 m., in forest in a humid quebrada, August 30, 1930, *W. Gehriger 380* (herb. Field Mus. No. 625,576, type).

According to the collector, the fruit is colored violet. Among the Venezuelan species of the genus, *Cephaelis anisopoda* is isolated in most of its characters, and it is not closely related, so far as I know, to any of the species of adjacent regions. It is remarkable for the very small flower heads, which are produced at most of the nodes; also for its small and exceptionally narrow leaves.

Cephaelis axillaris Sw. Prodr. Veg. Ind. Occ. 45. 1788. *Tapogomea axillaris* Poir. Encycl. 7: 585. 1806. *Evea axillaris* Standl. Contr. U. S. Nat. Herb. 18: 123. 1916.

Colonia Tovar, 2,100 m., *Pittier 9314* (G, W), *10008* (G, W); 1,800–2,000 m., *Allart 323* (W, Y); 1,800–2,100 m., *Fendler 571*

(G, M); in forest, *Woronow 7481* (L). Tabay, 2,300 m., moist ravine, *Gehriger 386* (F). Ranging to Colombia, Central America, and the West Indies.

A glabrous shrub commonly about 1 m. high; stipules persistent, green, bilobate, the short lobes obtuse or acute; leaves short-petiolate, the blades obovate-oblong, abruptly acuminate, attenuate to the base; flower heads small, axillary, sessile, subglobose, 1.5–2 cm. in diameter; bracts 4–6, ovate, obtuse, shorter than the flowers; calyx 5-dentate; corolla white; fruit blue or violet-blue.

Cephaelis barcellana (Muell. Arg.) Standl. Field Mus. Bot. 8: 184. 1930. *Psychotria barcellana* Muell. Arg. in Mart. Fl. Bras. 6^5: 369. 1881.

Reported by Mueller (loc. cit.) from Esmeralda, *Spruce 3421*. Tamatama, Amazonas, 100 m., *Holt & Gehriger 268* (F). Agüita, Mount Duida, 1,200 m., *Tate 921* (Y). Esmeralda, 100 m., *Tate 371* (Y). Also in Amazonian Brazil.

Closely similar to *Cephaelis tomentosa*, but distinguished especially by the pubescence of the leaves, that along the veins on the lower surface consisting of long, closely appressed hairs; in *C. tomentosa* the hairs are lax and widely spreading.

The species may represent only a variety of *C. tomentosa*, although it is easy to distinguish the two forms. In the collection from Mount Duida the bracts have elongate, green tips. I have seen similar specimens of this and *C. tomentosa* from other regions, and am inclined to believe that they represent only a minor variation of the species, although they may be of greater significance.

Cephaelis blepharophora, sp. nov.—Frutex ramosus, ramulis crassiusculis obtuse tetragonis vel in sicco compressis et fuscis glabris vel ad sulcos infra nodos hispidis vel hispidulis, internodiis 7–13 cm. longis; stipulae persistentes erectae alte connatae glabrae vel prope basin hispidulae, parte vaginali 7–8 mm. longa et 1 cm. lata subtruncata in lobos 4 anguste triangulari-oblongos 1 cm. longos attenuatos apice obtusos desinente, lobis erectis densissime pilis ochraceis ciliatis; folia crasse membranacea breviter petiolata opposita, petiolo gracili 12–20 mm. longo sparse adpresso-pilosulo; lamina elliptica vel oblongo-elliptica 16–19 cm. longa 6–8 cm. lata abrupte breviterque acuminata, acumine triangulari attenuato, basi acuta, supra laete viridis, tantum ad costam leviter sulcatam sparse villoso-pilosa, aliter glabra, subtus paullo pallidior, ad costam et sparsius ad nervos hispido-pilosa, inter nervos glabra, costa gracili elevata, nervis lateralibus utroque latere c. 17 gracilibus prominentibus angulo fere recto adscendentibus valde arcuatis in marginem desinentibus, nervulis prominulis laxe reticulatis; inflorescentiae capitatae axillares arcte sessiles densae multiflorae c. 2 cm. longae et fere aequilatae; bracteae numerosae fere liberae coriaceae glabrae sed dense ciliatae, exterioribus saepe lucidis costatis oblongo-lanceolatis usque ad 2.5 cm.

longis longe attenuatis, interioribus conformibus fere aequilongis flores arcte involventibus rigidis; flores sessiles, hypanthio cylindraceo 1 mm. longo glabro; calyx 1.5 mm. longus breviter 5-dentatus, tubo late campanulato glabro, dentibus tubo duplo brevioribus triangularibus remotis inaequalibus acutis erectis; corolla violacea extus glabra tubulosa, tubo gracili 15 mm. longo supra vix vel non dilatato, lobis 5 minutis 1.5 mm. longis obtusis adscendentibus intus glabris; antherae breviter exsertae lineari-oblongae 2–2.5 mm. longae.—Venezuela: Tabay, alt. 2,300–2,400 m., August 30, 1930, *Gehriger 387* (herb. Field Mus. No. 625,573, type).

The relationship of the plant is with *Cephaelis axillaris* Sw., a common species of tropical America. That is distinguished conspicuously by the size of the flower heads, and it differs also in floral details.

Cephaelis botryocephala Standl. Field Mus. Bot. 8: 63. 1930.

El Portachuelo, between Maracay and Ocumare de la Costa, Miranda, *Pittier 10133* (W, type; Y), *11364* (P, W, Y). Between Agua Blanca and Cumbote, 1,500 m., *Fendler 2554* (G). Prov. Barquisimeto, *Funck & Schlim 688* (P).

A shrub 1.5–2.5 m. high, the branches glabrous; stipules persistent, 6–7 mm. long, short-bifid at the apex, the lobes broad, obtuse; leaves petiolate, the blades oblong-elliptic or oval, 7–17.5 cm. long, 2.5–9.5 cm. wide, abruptly acuminate, cuneately acute at the base or rarely obtuse or subrounded, glabrous; flower heads axillary, fasciculate or short-pedunculate and arranged in short racemes, the heads recurved, 1–1.4 cm. long; bracts distinct, purple, broadly oval or rounded, glabrous, ciliolate; calyx 1.5 mm. long, the 5 lobes rounded, ciliolate; corolla yellow, glabrous outside, the tube 8 mm. long, the lobes acute, 2 mm. long.

Cephaelis Ernesti Krause, Notizbl. Bot. Gart. Berlin 6: 210. 1914.

Type from Mount Roraima, in forest at 1,900 m., *Ule 8771* (photo. and fragm. ex herb. Berol. in F).

A shrub 1–4 m. high, glabrous except in the inflorescence; stipule tube persistent, 4–6 mm. long, bearing at the apex several subulate acute teeth 2–2.5 mm. long; leaves short-petiolate, the blades narrowly oblong or oblanceolate-oblong, thinly coriaceous, 6–10 cm. long, 2–2.7 cm. wide, acuminate, at the base acute or subobtuse; flowers arranged in terminal ternate heads, the peduncles 1.5–2 cm. long; bracts rounded-ovate, short-acuminate, 4–6 mm. long; calyx several-dentate; corolla white, the tube 8–10 mm. long, the lobes several times shorter than the tube; fruit ovoid-globose, 6–8 mm. long.

Cephaelis Humboldtiana Cham. Linnaea 4: 136. 1829. *Psychotria Humboldtiana* Muell. Arg. in Mart. Fl. Bras. 6^5: 333. 1881.

Type from Javita, *Humboldt & Bonpland;* represented in herb. Field Mus. by a photograph of the type, ex herb. Berol.

Glabrous or nearly so; stipules short-connate, the lobes lance-subulate; leaves short-petiolate, coriaceous, the blades lance-elliptic or narrower, 7–8 cm. long, 2.5–3 cm. wide, cuspidate, with 12–14 pairs of veins; inflorescence terminal, headlike, composed of 3 heads; bracts ovate or rounded, entire or lobed, obtuse, glabrous, reddish; calyx 5-lobate, the lobes lanceolate; corolla puberulent, the lobes scarcely one-third as long as the tube.

Cephaelis Humboldtiana Cham., var. **ornata** (Muell. Arg.), comb. nov. *Psychotria Humboldtiana* var. *ornata* Muell. Arg. in Mart. Fl. Bras. 6[5]: 334. 1881.

Type from the Río Pacimoni, *Spruce 3411.* Mueller reports also *Spruce 3074* from San Carlos. The variety grows also in Amazonian Brazil.

Leaves larger, the blades 8–14 cm. long, 2.5–4.5 cm. wide, with 15–20 pairs of veins; stipules 5 mm. long; corolla 15 mm. long.

Cephaelis iodotricha (Muell. Arg.), comb. nov. *Psychotria iodotricha* Muell. Arg. in Mart. Fl. Bras. 6[5]: 375. 1881.

Type from the Río Casiquiare, *Spruce 3274.* Mueller reports also *Spruce 3397* from the Río Pacimoni.

Suffrutescent, the branches retrorse-hispid with bluish hairs; stipules 4 mm. long, short-connate, the lobes lance-triangular, setaceous-acuminate; leaves subsessile, membranaceous, lance-acuminate, 5–8 cm. long, 1.2–2.2 cm. wide, obliquely obtuse at the base; heads terminal and axillary, sessile, about 5-flowered, the involucre cuplike, deeply 5–8-lobed, the lobes setaceous-acuminate, 5–8 mm. long; bracts spatulate; calyx lobes linear-setaceous, plumose; corolla as long as the calyx, hispid above, the lobes one-third as long as the tube.

Cephaelis macrocarpa Standl. Field Mus. Bot. 8: 64. 1930.

Near Colonia Tovar, 1,500 m., *Fendler 1990* (G, type; K). Puerto La Cruz, Distrito Federal, *Pittier 8079* (F). Prov. Carabobo, *Funck & Schlim 625* (P).

Glabrous or nearly so; stipules persistent, 5–6 mm. long, connate, bidentate at the apex, the teeth subulate, 1 mm. long; leaves petiolate, subcoriaceous, the blades narrowly oblong or lance-oblong, 9.5–17 cm. long, 2.5–5 cm. wide, acuminate or long-acuminate, narrowed to the acute base; heads terminal or pseudo-axillary, long-pedunculate, simple, densely few-flowered; outer bracts 2, broadly ovate, obtuse, 8 mm. long, glabrous, ciliate, the inner slightly shorter, oval to lanceolate; calyx 4–5 mm. long, 5-dentate; fruit subglobose, 12 mm. long.

Cephaelis microcephala H. & B. ex R. & S. Syst. Veg. 5: 214. 1819. *C. prunifolia* HBK. Nov. Gen. & Sp. 3: 377. 1819. *Psychotria microcephala* Muell. Arg. in Mart. Fl. Bras. 6[5]: 351. 1881.

Type collected along the Orinoco, *Humboldt & Bonpland* (photo. ex herb. Berol. in herb. Field Mus.).

Glabrous or nearly so; stipules setaceous, connate at the base; leaves short-petiolate, the blades elliptic, 3.5–4.5 cm. long, 2.5–2.7 cm. wide, acute or short-acuminate, with 6–8 pairs of veins; heads chiefly terminal, short-pedunculate, 3–4-flowered, the bracts of the involucre 4, subequal, short-connate, linear-lanceolate, yellowish; calyx minutely and irregularly dentate; corolla 15 mm. long, glabrous, the lobes scarcely one-third as long as the tube.

Cephaelis microcephala H. & B., var. **tripotamica** (Muell. Arg.), comb. nov. *Psychotria microcephala* var. *tripotamica* Muell. Arg. in Mart. Fl. Bras. 6[5]: 352. 1881.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3169*.

Leaf blades larger, oblong-elliptic, glaucescent beneath, 6–9 cm. long, 2.2–3.5 cm. wide, the veins sparsely and minutely puberulent beneath; involucre almost 2 cm. long; calyx 2 mm. long; fruit 6 mm. long and 3 mm. broad.

Cephaelis muscosa (Jacq.) Sw. Prodr. Veg. Ind. Occ. 45. 1788. *Morinda muscosa* Jacq. Hist. Stirp. Amer. 65. *pl. 45*. 1763.

San Juan Mountain, Margarita Island, 500 m., *Johnston 113* (F, W). Also in the West Indies and Central America.

A glabrous shrub 2–3 m. high; leaves short-petiolate, lanceolate to elliptic-oblong, 8–11 cm. long, 3–4 cm. wide, acuminate; stipules persistent, bidentate; heads axillary, sessile or nearly so, 10–13 mm. in diameter; bracts about 4, purplish, dentate; calyx 5-dentate; corolla white; fruit subglobose, 1–1.5 cm. long.

Cephaelis pubescens Hoffmannsegg ex R. & S. Syst. Veg. 5: 213. 1819. *C. bracteocardia* DC. Prodr. 4: 534. 1830. *Psychotria bracteocardia* Muell. Arg. in Mart. Fl. Bras. 6[5]: 362. 1881.

Santa Catalina, *Rusby & Squires 221* (F, M, W), *224* (F, M, W). Perijá, Zulia, *Tejera 129* (G). Without locality, *Passarge & Selwyn 718* (B). Banks of the Orinoco, *Chaffanjon* (P). Also in Brazil.

A shrub, the branchlets pubescent or tomentose; stipules 8–10 mm. long, setaceous-acuminate from a triangular base; leaves short-petiolate, thin, the blades lance-elliptic, 12–17 cm. long, 3–6.5 cm. wide, acuminate, acute at the base, densely puberulent or pubescent, with 13–16 pairs of oblique veins; heads terminal, pedunculate, the 2 showy bracts free, red, cordate at the base, pubescent, obtusely acuminate, about 2 cm. long and almost as wide; calyx cupular, 5-dentate; corolla 5 mm. long, pubescent, the lobes one-fourth as long as the tube; fruit subglobose, 2.5–3 mm. long.

Cephaelis rosea Benth. in Hook. Journ. Bot. 3: 224. 1841. *Psychotria rosea* Muell. Arg. in Mart. Fl. Bras. 6[5]: 360. 1881.

Reported by Mueller (loc. cit.) from San Gabriel, *Spruce 2057;* and from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3355*. Also in adjacent Brazil and the Guianas.

Almost glabrous; stipules 6 mm. long, short-connate, lance-linear; leaves short-petiolate, rigidly membranaceous, the blades ovate-lanceolate or elliptic-lanceolate, 12–18 cm. long, 4–6.5 cm. wide, cuspidate, narrowed to the base, minutely puberulent beneath along the veins; heads terminal, short-pedunculate, glabrate, the 2 outer bracts broader than long, 3–3.5 cm. wide and about 2 cm. long, subcordate at the base, glabrous outside; calyx 5-fid, the lobes lanceolate or ovate, unequal; corolla glabrate, 7 mm. long.

Cephaelis ruellioides Oliver ex Ule, Bot. Jahrb. 52: Beibl. 115: 49. 1914; Knuth, Init. Fl. Venez. 675. 1928.—This is a name only, reported for a plant of Mount Roraima. I have seen no material so labeled.

Cephaelis salicifolia H. & B. ex R. & S. Syst. Veg. 5: 214. 1819; HBK. Nov. Gen. & Sp. 3: 376. 1819. *Evea lucentifolia* Blake, Contr. U. S. Nat. Herb. 20: 532. *pl. 42*. 1924.

Type from Mount Cocollar at 800 m., *Humboldt & Bonpland* (photo. ex herb. Berol. in herb. Field Mus.). Guaremales, road from Puerto Cabello to San Felipe, Carabobo, in forest, 10–100 m., *Pittier 8911* (W, type of *Evea lucentifolia*). Colonia Tovar, 1,950 m., *Fendler 570* (G, K, M). Chacaito Gorge near Caracas, *E. Pittier 189* (G); *Pittier 10331* (G, W, Y). Upper Carrasqual Valley, Distrito Federal, *Pittier 11945* (W, Y). Alto de Macanilla, Miranda, 700 m., *Jahn 1285* (W, Y). Valley of Patanemo, Carabobo, *Pittier 8653* (G, W). Caracas, *Linden 278* (K). Cumaná, *Funck 642* (K, P). Without locality, *Moritz 463* (L). Puerto Cabello, *Karsten* (L). Montalbán, Prov. Carabobo, *Funck & Schlim 642* (P). Guanaguana, *Funck 642* (P). High Andes of Trujillo and Mérida, *Linden 278* (P). Prov. Carabobo, *Funck & Schlim 539* (P).

A nearly glabrous shrub or small tree, usually 1–2 m. high, according to Humboldt and Bonpland a tree 6 m. high; stipules short-connate, the lobes setaceous, 5–8 mm. long; leaves lustrous, thin but firm, subsessile, ovate to lance-ovate, mostly 6–10 cm. long, acuminate, rounded or obtuse at the base; heads terminal, pedunculate, the outer bracts about 2 cm. long and 6–10 mm. wide, white turning purple or violet, acute or acuminate; calyx small, unequally 5-dentate; corolla white, about 18 mm. long, glabrous or nearly so, the lobes 5 mm. long; fruit blue.

Cephaelis sororiella (Muell. Arg.) Standl. Field Mus. Bot. 7: 80. 1930. *Psychotria sororiella* Muell. Arg. in Mart. Fl. Bras. 6^5: 375. 1881.

Type collected on the Río Negro near San Carlos, *Spruce 3682, 3076*.

Branchlets and peduncles sparsely pubescent; leaf blades firmly membranaceous, broadly lanceolate, 7–14 cm. long, 3–5 cm. wide,

sparsely pubescent beneath on the veins, the veins about 12 pairs; stipules linear-lanceolate; heads terminal, short-pedunculate, the 4 outer bracts lance-ovate, united at the base, 13–15 mm. long; calyx 5-dentate; corolla hirtous above, the lobes one-third as long as the tube.

Cephaelis stipulosa (Muell. Arg.), comb. nov. *Psychotria stipulosa* Muell. Arg. in Mart. Fl. Bras. 6^5: 334. 1881.

Type from the region of the rivers Vasiva and Pacimoni on the Río Negro, *Spruce 3382.*

Glabrous throughout; stipules 3 cm. long, broadly ovate, bilobate, the lobes obtuse; leaves short-petiolate, the blades membranaceous-coriaceous, lance-elliptic, 16–21 cm. long, 5–8 cm. wide, with 22–28 pairs of veins, short-acuminate, narrowed at the base; flower head depressed-globose-ovoid, terminal, about 22 mm. wide and 18 mm. long, composed of 9–10 secondary heads; outer bracts orbicular-ovate, obtuse; calyx truncate; corolla 5 mm. long, glabrous outside.

Cephaelis Swartzii DC. Prodr. 4: 534. 1830.

Caracas, *Birschel* (G). Between Petaquire and the sea, 1,500 m., *Fendler 1977* (G). Also in the West Indies.

A glabrous shrub; stipule sheath truncate or bifid; leaf blades elliptic-oblong, 7–12 cm. long, acute or acuminate; heads terminal, pedunculate, 1–2 cm. broad; outer bracts ovate-rounded, blue, the inner ones rounded or obsoletely lobed at the apex; corolla and fruits blue.

Cephaelis tomentosa (Aubl.) Vahl, Eclog. Amer. 1: 19. 1796. *Tapogomea tomentosa* Aubl. Pl. Guian. 1: 160. *pl. 61.* 1775.

Caripe, *Funck 87* (P). Perijá, Zulia, *Tejera 256* (W). Colón, Táchira, 1,200 m., *de Bellard 34* (W). Between Valencia and Campanero, 1,800 m., *Fendler 2339* (G). San Cristóbal, Prov. Mérida, *Linden 713* (L). Cumaná, *Funck 77* (L). Ejido, *Mocquerys 1034* (P). Lora River, in forest, *Pittier 10915* (P). Ranging from Mexico to Bolivia.

A slender shrub sometimes 5 m. high but usually much smaller, copiously hirsute throughout with coarse spreading hairs; leaf blades thin, lanceolate to ovate-elliptic, large, long-acuminate; flower heads terminal, pedunculate, dense and many-flowered, the 2 outer bracts large, deep red, saccate at the base, much exceeding the flowers; corollas yellow; fruit bright blue.

Cephaelis violacea (Aubl.) Willd. Sp. Pl. 1: 977. 1797. *Tapogomea violacea* Aubl. Pl. Guian. 1: 157. *pl. 60.* 1775.

Santa Catalina, *Rusby & Squires 220* (F, M, W). Also in Colombia and the Guianas.

A glabrous shrub or small tree; stipules broad, obtuse; leaves short-petiolate, the blades oval to elliptic-oblong, acuminate; heads

large, terminal, sessile; bracts about 5, green or violet; corolla yellowish white; fruit blue.

66. DECLIEUXIA HBK.

Declieuxia fruticosa (Willd.) Kuntze, Rev. Gen. 1: 279. 1891. *Houstonia fruticosa* Willd. ex R. & S. Syst. Veg. 3: 527. 1818. *D. chiococcoides* HBK. Nov. Gen. & Sp. 3: 354. *pl. 281.* 1820. *D. mexicana* DC. Prodr. 4: 479. 1830.

Type from Caripe, *Humboldt;* the same collection probably is the type of *D. chiococcoides.* Without locality, *Warming 161* (W); *Eggers 13212a* (W). Nagua-Nagua, *Warming 157* (W). High mountains north of Caracas, 1,800 m., *Eggers 13212* (W). Upper Cotiza, near Caracas, *Pittier 7402* (W). Avila savannas, near Caracas, 800–1,500 m., *Pittier 9525* (G, Y). Quirorá, Mérida, 1,800 m., *Jahn 694* (G, Y). Colonia Tovar, 1,350–2,100 m., *Fendler 611* (G, M). Galipán, 1,500 m., *Kuntze 1545* (W). El Avila, above Caracas, *Woronow 7402* (L), *7397* (L). Between Turmero and Chuao, 1,200 m., *Preuss 1656* (B). Without locality, *Funck 433* (F). Sabanas de Cujicito, 300 m., sunny sandy places, *Saer 542* (F). Sabana de Atures, *Gaillard 48* (P). Atures, *Chaffanjon 203* (P). Mariquita, *Chaffanjon* (P). Growing usually in savannas or on exposed grassy slopes. Ranging from Central America to Brazil.

A low perennial, erect, herbaceous or suffrutescent, glabrous or nearly so, commonly about 30 cm. high; leaves opposite or ternate, oblong-elliptic, sessile, acute, narrowed to the base; flowers small, white or purplish, arranged in umbellate cymes; fruit didymous, 2-celled, the cells 1-seeded.

The plant is a somewhat variable one, but the forms do not appear to be sufficiently distinct to deserve recognition by name.

I have not seen the description of *Declieuxia Alfredi* Ernst, Rev. Cient. Mens. Univ. Venez. 1: 222. 1867. If it is referred to the proper genus, probably the plant should be considered a synonym of *D. fruticosa,* the only species represented by recent collections from Venezuela.

67. RUDGEA Salisb.

Rudgea apodantha Standl. Field Mus. Bot. 8: 72. 1930.

Near Colonia Tovar, 1,200 m., *Fendler 1993* (G, type; K).

Branchlets glabrous; stipules persistent, rounded-ovate, 3–4 mm. long, rounded at the apex and furnished with a few thickened setae 5–6 mm. long; leaves short-petiolate, the blades obovate-oblong, 11–20 cm. long, 4.5–8 cm. wide, acute or obtuse and abruptly acuminate, narrowed to the obtuse base, glabrous above, pale beneath and minutely scaberulous or glabrous; inflorescence terminal, sessile, capitate, few-flowered; fruit black, obovoid-globose, 12 mm. long.

Rudgea cornifolia (H. & B.), comb. nov. *Psychotria cornifolia* H. & B. ex R. & S. Syst. Veg. 5: 191. 1819; HBK. Nov. Gen. & Sp. 3: 362. 1819. *P. orinocensis* DC. Prodr. 4: 512. 1830. *P. fimbriata* Benth. in Hook. Journ. Bot. 3: 226. 1841. *R. micrantha* Muell. Arg. Flora 59: 454. 1876. *R. fimbriata* Standl. in Standl. & Cald. Lista Pl. Salv. 274. 1920.

Type collected near Maipures, on the Orinoco, *Humboldt & Bonpland*. Sacupana, *Rusby & Squires 97* (F, M, W). San Antonio de Orinoco, Amazonas, 100 m., humid forest, *Holt & Gehriger 249* (F). Ranging to Brazil, Bolivia, and Central America.

A glabrous shrub; stipules triangular-ovate, incised-laciniate; leaves subsessile, broadly elliptic to elliptic-oblong, 8–15 cm. long, acuminate, obtuse at the base or even rounded; inflorescence cymose-paniculate, small, broad, many-flowered, the flowers sessile or nearly so; calyx minutely 5-dentate; corolla white, 5–7 mm. long, the lobes longer than the tube; fruit ellipsoid, 5–8 mm. long.

In the herbarium of Field Museum there is a photograph of the type specimen of *Psychotria cornifolia* (in herb. Berol.), and examination of this leaves scant doubt that the plant is the widely distributed species to which the name *Rudgea fimbriata* has been applied recently.

Rudgea crassiloba (Benth.) Robinson, Proc. Amer. Acad. 45: 408. 1910. *Coffea crassiloba* Benth. in Hook. Journ. Bot. 3: 233. 1841.

Four km. northeast of Santa Bárbara, *Christ 20* (W). Also in the Guianas.

A glabrous shrub; stipules broad, cartilaginous, fimbriate at the apex; leaves short-petiolate, the blades oval-oblong, acuminate, cuneate at the base, coriaceous, shining; inflorescence terminal, short-pedunculate, the flowers sessile, capitate-corymbose; calyx deeply 4-parted, the lobes obtuse; corolla 8 mm. long, white, 4-corniculate at the apex in bud, the lobes equaling the tube.

Rudgea fissistipula Muell. Arg. Flora 59: 449, 460. 1876; in Mart. Fl. Bras. 6^5: 169. *pl. 22, f. 1.* 1881.

Type from San Carlos on the Río Negro, *Spruce 3683*.

Branchlets minutely puberulent; stipules 19–22 mm. long, obovate, cleft to below the middle into numerous subulate lobes; leaves short-petiolate, ovate, 25–32 cm. long, 15–18 cm. wide, cuspidate, abruptly contracted at the base, glabrous; panicles short-pedunculate, small and dense, the flowers crowded; calyx lobes ovate-triangular, acuminate, ciliolate; corolla 6–7 cm. long, papillose, the lobes 8–9 mm. long.

Rudgea Hostmanniana Benth. Linnaea 23: 459. 1850.

Catalina, *Rusby & Squires 209* (F, B, M, W). Limón, 800 m., *Jahn 480* (W), *479* (W). Caruao Valley, Distrito Federal, *Pittier*

11840 (P, W, Y). Palmasola, Lara, at sea level, *Pittier 6369* (W, Y). Puerto Cabello to San Felipe, Carabobo, *Pittier 8881* (G, W, Y). Near Colonia Tovar, 900 m., *Fendler 1992* (G). Without locality, *Jahn 551* (Y). Prov. Carabobo, *Funck & Schlim 570* (L, P). Also in the Guianas and Trinidad.

A shrub or small tree, sometimes 4 m. high, with a trunk 7 cm. in diameter; stipules indurate, dentate; leaves coriaceous, petiolate, the blades obovate to oblong-elliptic, mostly 10–20 cm. long and 4–10 cm. wide, acute or obtuse, narrowed to the base, glabrous; panicles small and white, the flowers sessile, clustered; calyx lobes 5, triangular; corolla 8 mm. long, corniculate at the apex in bud, the lobes longer than the tube, the throat barbate; fruit red or black, oval, 1 cm. in diameter.

"Fruta de paloma."

Rudgea Karstenii, sp. nov.—Ut videtur dense ramosa, omnino glabra, ramulis crassiusculis ad nodos saepe incrassatis subteretibus, vetustioribus ochraceis, novellis lutescentibus et striatis, internodiis brevibus; stipulae 1.5–2 mm. longae primo dorso aculeolis numerosis brevibus subulatis onustae, aculeolis serius deciduis, parte persistente indurata et lucida subtruncata vel late rotundata; folia breviter petiolata opposita, petiolo crassiusculo 1.5–3 mm. longo; lamina coriacea anguste elliptico-oblonga vel oblanceolato-oblonga 3–7 cm. longa 1–3 cm. lata, versus apicem obtusum paullo angustata, basin versus longius angustata, basi ipsa acuta, in sicco luteo-viridis, supra lucida, costa elevata, venis inconspicuis et vix elevatis, subtus fere concolor, costa gracili elevata, nervis lateralibus utroque latere c. 9 obliquis vel angulo lato adscendentibus gracilibus prominentibus fere rectis vel leviter curvis remote a margine conjunctis, nervulis prominulis laxe reticulatis; inflorescentia parva terminalis foliis multo brevior 7–10 mm. longe pedunculata trichotoma, c. 1 cm. longa et aequilata, ramis 3 vulgo trifloris, floribus sessilibus vel 1–2 mm. longe pedicellatis, bracteis minutis triangularibus; hypanthium anguste obconicum 1 mm. longum glabrum, calyce campanulato 1.5 mm. longo truncato vel obscure repando-denticulato; fructus ellipsoideus glaber 5.5 mm. longus basi et apice rotundatus, pyrenis 2 dorso obtuse 5-costatis facie interiore planis.—Venezuela: Colonia Tovar, *H. Karsten* (herb. Leningrad, type).

The plant is noteworthy for its small and narrow, coriaceous, yellowish green leaves.

Coffea laurifolia HBK. Nov. Gen. & Sp. 3: 372. 1819, non Salisb.

Type collected between Javita and San Baltazar, in moist forest (Misiones del Orinoco), *Humboldt & Bonpland.*

The stipules are described as "ciliolate-multifid," and the plant is, therefore, probably a species of *Rudgea.*

Rudgea maypurensis Standl. Field Mus. Bot. 8: 72. 1930.

Type from Maipures, frequent in granitic mountains, *Spruce 3615* (K, type).

A shrub 1.5–2.5 m. high, the branches glabrous; stipules subpersistent, 3–4 mm. long, subtruncate and provided at the apex with a few rigid setae 3–4 mm. long; leaves subsessile, rigid-coriaceous, elliptic or elliptic-oblong, 4.5–6.5 cm. long, 1.5–3.5 cm. wide, obtuse or acutish, usually emarginate at the base, glabrous, pale beneath; inflorescence terminal, long-pedunculate, subcapitate-racemose, 3–4 cm. long; calyx lobes oblong, 1.5–2 mm. long, obtuse or acute, ciliate; fruit red, subglobose, 6 mm. long, glabrous.

Rudgea spicata Schum. ex Ule, Bot. Jahrb. Engler 52: Beibl. 115: 51. 1914; Knuth, Init. Fl. Venez. 674. 1928.

This is merely a name applied to a plant reported from Mount Roraima by Ule. The species has not been described, and I have seen no material of it.

Rudgea Woronovii Standl. Field Mus. Bot. 7: 155. 1930.

Sutinga, edge of forest, *Koch-Grünberg 77* (B). Also in Colombia and Peru.

Stipules persistent, 3–4 cm. long, deeply multilaciniate; leaves short-petiolate, the blades membranaceous, oblong-obovate, about 30 cm. long and 12.5 cm. wide, short-acuminate, cuneate-attenuate to the base, glabrous; inflorescence terminal, thyrsoid-paniculate, long-pedunculate, 8 cm. long and 3 cm. wide, laxly many-flowered, the branches minutely puberulent or almost glabrous, the pedicels 1–2 mm. long; fruit subglobose, 3–3.5 mm. long, conspicuously costate.

68. PSYCHOTRIA L.

Psychotria alba R. & P. Fl. Peruv. 2: 58. *pl. 205, f. a.* 1799. *P. densiflora* H. & B. ex R. & S. Syst. Veg. 5: 189. 1819. *P. patula* Willd. ex R. & S. loc. cit. *P. ardisiaefolia* HBK. Nov. Gen. & Sp. 3: 359. 1819. *Mapouria alba* Muell. Arg. Flora 59: 458. 1876.

Colonia Tovar, *Karsten* (L). Llanos de Apure, 1893–94, *Geay* (P). Ranging from Central America to Brazil and Bolivia.

A nearly glabrous shrub or small tree; stipules large, commonly obtuse, brown, caducous; leaves petiolate, elliptic-oblong, usually broadest at or slightly above the middle, acute or acuminate, acute at the base, glabrous or puberulent beneath along the veins; inflorescence terminal, pedunculate, glabrous or minutely puberulent, paniculate, open, many-flowered, radiately branched at the base, the bracts inconspicuous and deciduous; flowers short-pedicellate, the pedicels frequently elongate in fruit; corolla white, 4 mm. long, minutely puberulent or glabrous; fruit subglobose, 4.5 mm. long.

Psychotria araguana Standl. Field Mus. Bot. 8: 68. 1930.

El Portachuelo, on the road from Maracay to Ocumare, Aragua, in humid forest, 1,100 m., *Pittier 11828* (W, type). San Juan de los Morros, Aragua, *Pittier 10126* (W).

A shrub 1 m. high, the branchlets glabrous; stipules persistent, short-connate, the 4 lobes of the sheath triangular, acute, 1 mm. long; leaves petiolate, the blades ovate-oblong or lance-oblong, 10–15 cm. long, long-acuminate, acute at the base or obtuse and abruptly contracted, glabrous, with about 9 pairs of veins; inflorescence terminal, long-pedunculate, cymose-paniculate, lax, about 7 cm. long and 8 cm. broad, the branches alternate, glabrous, divaricate or subrecurved, dichotomous, the flowers sessile, solitary or fasciculate; calyx 0.5 mm. long, obscurely dentate; corolla pinkish white, 5–6 mm. long, glabrous, not barbate in the throat, the 5 lobes oblong, obtuse.

Related to *P. patens* Sw. but with different stipules. *Pittier 10126* was listed by Knuth (Init. Fl. Venez. 672. 1928) incorrectly as *Psychotria pubescens* Sw., a species unknown in Venezuela.

Psychotria atabapoensis Standl. Field Mus. Bot. 8: 190. 1930.

San Fernando de Atabapo, on stream bank, *Koch-Grünberg 67* (B, type).

A glabrous shrub; stipules persistent, green, connate into a sheath 1–2 mm. long, bearing 4 remote subulate teeth scarcely 1 mm. long; leaves short-petiolate, the blades oblong, 10–14 cm. long, acuminate or long-acuminate, acute or rarely subrounded at the base, the veins about 13 pairs, oblique, extending to the margin; inflorescence terminal, long-pedunculate, thyrsoid-paniculate, 3.5–7 cm. long, 3.5–5.5 cm. wide, the branches alternate, spreading, naked at the base, the flowers sessile; calyx short, remotely and minutely denticulate; corolla dirty white, 4 mm. long, in bud rounded at the apex, not barbate in the throat, the lobes obtuse, 1 mm. long.

Differing from *P. patens* Sw. in the short stipules, more numerous veins, and broader inflorescence.

Psychotria Bolivariana Standl. Field Mus. Bot. 8: 66. 1930.

Galipán, near the crest of Cerro de Avila, Miranda, 1,800–2,400 m., *Pittier 6211* (F, type; B, W, Y). Colonia Tovar, 1,950 m., *Fendler 550* (G, K, M). Cerro de Galipán, 1,350–1,800 m., *Eggers 13562* (F, W). Mountains near Galipán, *E. Pittier 130* (G, W, Y). Upper Catuche Wood near Caracas, 1,400 m., *Pittier 9582* (W). Caracas, *Birschel* (K). Colonia Tovar, *Moritz 841* (B, K, L). El Avila, above Caracas, in forest, *Woronow 7453* (F, L). Colonia Tovar, *Woronow 7654* (L); *Karsten* (L). Galipán, in 1854, *Gollmer* (B). Mérida, *Moritz 971* (B). Andes of Trujillo and Mérida, *Linden 314* (P), *336* (P). Tabay, 2,300 m., moist quebrada, *Gehriger 392* (F). Also in Colombia.

A slender shrub 2–4 m. high, the branchlets densely pilose; stipules persistent, short-connate, bifid, the lobes lanceolate or linear-lanceolate; leaves petiolate, the blades lance-oblong, 7–13 cm. long, 2.5–4 cm. wide, narrowly long-acuminate, acute or obtuse at the base, hispidulous above, more densely so beneath; inflorescences chiefly terminal, pedunculate, 1.5–4 cm. long and broad, cymose-paniculate, many-flowered, the flowers sessile or short-pedicellate, the bracts conspicuous, linear-attenuate; calyx 4 mm. long, deeply 5-fid, the lobes lance-linear; corolla white, 1 cm. long, pilose, the lobes 2.5 mm. long; fruit black or violet, 5 mm. long, densely pilose.

Some of the numbers cited have been determined wrongly as *P. Aschersoniana* Schum. & Krause, a Colombian species, similar in appearance to *P. Bolivariana* but with a glabrous corolla. Specimens of *P. Bolivariana* were listed by Knuth (Init. Fl. Venez. 673. 1928) as *P. trichocephala* Poepp. & Endl., a quite distinct species of eastern Peru.

Psychotria bracteata DC. Prodr. 4: 510. 1830.

Río Casiquiare, Caxoeira San Sebastián, *Tate 151* (F, Y). Guianas and northern Brazil.

A shrub; stipules subpersistent, 6–8 mm. long, linear-lanceolate from an ovate base, short-connate; leaves petiolate, the blades sublanceolate, 9–12 cm. long or more, acuminate, acute at the base, with 10–12 pairs of veins, glabrous; inflorescence terminal, pedunculate, thyrsoid-corymbose, dense, the bracts subopposite or verticillate; lower bracts 7–9 mm. long, lance-linear, the inner ones lance-rhombic, red, about equaling the corollas, the flowers sessile; calyx lobes triangular-ovate, acutish; corolla 9–10 mm. long, glabrous, barbate in the throat, rounded at the apex in bud; fruit subdidymous, the nutlets 4-costate.

Psychotria bracteata DC., var. **latifolia** Muell. Arg. in Mart. Fl. Bras. 6^5: 313. *pl. 49, f. 2.* 1881.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3440.*

Petiole 3–4 mm. long, the blades lance-ovate, long-acuminate, coriaceous, lustrous, 7–12 cm. long, 2.5–5 cm. wide.

Psychotria cacuminis, sp. nov.—Ramuli subgraciles ferruginei subteretes glabri, novellis sparse minute puberulis, internodiis elongatis; stipulae persistentes erectae connatae breves breviter bilobae, lobis late rotundatis; folia coriacea breviter petiolata opposita, lamina ovata vel oblongo-ovata longe acuminata basi rotundata vel obtusa utrinque praesertim in statu juvenili ad venas sparse minute puberula vel glabrata; inflorescentia terminalis longe pedunculata cymoso-corymbosa dense pauciflora, bracteis obsoletis, floribus sessilibus vel brevissime pedicellatis; calyx minutus breviter obtuseque 5-dentatus;

corolla extus dense furfuraceo-puberula tubuloso-infundibuliformis in alabastro apice subtruncata, lobis tubo duplo brevioribus.

Branchlets rather slender, subterete, ferruginous, glabrous, the youngest ones sparsely and minutely puberulent, the internodes elongate; stipules erect, persistent, connate, indurate, 2–4 mm. long, shallowly bilobate, the lobes broadly rounded, glabrous; leaves coriaceous, short-petiolate, opposite, the stout petioles 5–7 mm. long, glabrous; leaf blades broadly ovate to oblong-ovate, 6–10 cm. long, 3–5 cm. wide, gradually or abruptly long-acuminate, with narrow acute tip, at the base rounded or obtuse, yellowish green and lustrous on the upper surface, minutely puberulent along the veins and sometimes very minutely puberulent between them, or almost glabrous, the costa and veins prominent, beneath paler and when dried often reddish, minutely puberulent along the veins, finely pale-punctiulate, the costa stout, elevated, the veins about 8 pairs, prominent, slender, diverging at almost a right angle, arcuate, anastomosing close to the thin, pale, often revolute margin, the veinlets prominulous and laxly reticulate; inflorescence terminal, cymose-corymbose, rather densely few-flowered, erect, long-pedunculate, the slender peduncle 5–6 cm. long, puberulent, the inflorescence about 3.5 cm. long and 2.5 cm. broad, the basal branches subopposite, strongly ascending, straight, minutely puberulent, the bracts obsolete, the flowers congested, sessile or nearly so; hypanthium minutely puberulent, 0.7 mm. long, the calyx of equal length, minutely puberulent, the short teeth obtuse; corolla greenish white, densely furfuraceous-puberulent, in bud broad and almost truncate at the apex, the stout tube 7 mm. long, scarcely dilated upward, not barbate in the throat, the 5 lobes oblong, obtuse, 3 mm. long, ascending or spreading, glabrous within; anthers linear, short-exserted, 2 mm. long, the very slender filaments glabrous; style short-exserted.—Venezuela: Mount Duida, crest of Ridge 25, alt. 1,890 m., *G. H. H. Tate 410* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.).

Psychotria campylopoda, sp. nov.—Frutex, ramulis gracilibus subteretibus fuscis vel olivaceis dense scaberulo-puberulis, novellis plus minusve angulatis, internodiis brevibus vel elongatis; stipulae breves persistentes in vaginam truncatam connatae, vagina in lobos 4 breves subulatos desinente; folia parva coriacea breviter petiolata opposita, lamina elliptico-oblonga vel ovato-oblonga acuta vel acutiuscula basi acuta utrinque minutissime scaberulo-puberula vel fere glabra; inflorescentiae terminales vel axillares pedunculatae capitatae pauciflorae recurvae bracteis paucis ellipticis vel oblongis viridibus fulcratae; fructus bilocularis subglobosus minute scaberulus.

A shrub 0.6–1.2 m. high, apparently densely branched, the branchlets slender, subterete, fuscous or olivaceous, densely scaberulous-puberulent, the youngest branchlets somewhat angulate, the internodes short or elongate; stipules erect, persistent, puberulent, connate into a truncate or subtruncate, greenish sheath 1.5–2 mm. long, the sheath bearing at the apex 4 subulate or narrowly triangular

lobes of equal length; leaves small, coriaceous, short-petiolate, opposite, the stout pedicels 2–7 mm. long, scaberulous; leaf blades elliptic-oblong or ovate-oblong, 2.5–6.5 cm. long, 1–2.5 cm. wide, acute or acutish at the apex, acute at the base, minutely scaberulous on both surfaces or in age nearly glabrous, yellowish green on the upper surface, the venation obsolete, much paler beneath, the costa slender, elevated, the veins about 8 pairs, oblique, ascending at a broad or rather narrow angle, arcuate, anastomosing near the revolute margin, the veinlets few, laxly reticulate, prominulous or obscure; inflorescences terminal and produced from the upper axils, capitate, few-flowered, 5–6 mm. broad, the peduncles 1–1.5 cm. long, slender, recurved, densely puberulent, angulate, thickened toward the apex; outer bracts about 4, elliptic to oblong or ovate, 4–5 mm. long, exceeding the flowers, obtuse or acute, apparently greenish, minutely puberulent, erect, narrowed at the base, 1-costate, the inner bracts shorter and often narrower; flowers closely sessile; fruit purplish blue, subglobose, 4.5 mm. long, rounded at base and apex, minutely scaberulous, shallowly bisulcate, the 2 pyrenes smooth dorsally, concave and not sulcate on the inner face.—Venezuela: Mount Duida, hillsides and flat ground at Central Camp, alt. 1,440 m., *G. H. H. Tate 534* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Mount Duida, slopes of Ridge 25, 1,650–1,800 m., *Tate 412* (Y).

The leaves are much like those of *Psychotria oblita* Wernham, described from Roraima, but the Mount Duida plant belongs in Mueller's subgenus *Cephaelis*, group *Pseudocephaelideae*. It is described as a slender, straggling bush. The collector's notes state that the corolla tube is yellowish white and the lobes purple, but I find no corollas on any of the specimens available for study.

Psychotria carthaginensis Jacq. Enum. Pl. Carib. 16. 1760. *P. foveolata* R. & P. Fl. Peruv. 2: 59. *pl. 207, f. b.* 1799.

Without locality, *Moritz 847* (L). Sarare, in 1894, *Geay* (P). Zulia, *Mocquerys 843* (P). Río Duaca, 1893–94, *Mocquerys* (P). Margarita Island, 450 m., *Johnston 337* (F, W). El Valle, Margarita Island, *Miller & Johnston 215* (M, W). Bosque de Macuto, Lara, *Saer 138* (W, Y). El Amparo, Cojedes, March 14, 1924, *Mell* (Y). Between Petaquire and the sea, 1,800 m., *Fendler 2601* (G, K). Near Colonia Tovar, 900 m., *Fendler 565* (G, K, Y); at 1,500 m., *Fendler 2603* (G, K). Widely distributed in South and Central America.

A nearly glabrous shrub 1–3 m. high; stipules obovate, obtuse, brownish, deciduous; leaves petiolate, lance-elliptic to oblong-obovate, acute or acuminate, acute to attenuate at the base, minutely puberulent beneath or glabrate; inflorescence terminal, pedunculate, paniculate, commonly radiately branched at the base, open, many-flowered, the bracts minute and deciduous; flowers sessile; calyx denticulate; corolla white, 4 mm. long, minutely puberulent or glabrous; fruit red, 4 mm. long, glabrous, conspicuously costate.

This is closely related to *P. alba* R. & P., the flowers being pedicellate in that species and sessile in this. Both plants belong to the subgenus *Mapouria*, which is maintained by some authors as a distinct genus, but undeservedly so, as it seems to the present writer. Two of the collections cited above are listed by Knuth (Init. Fl. Venez. 671. 1928) as *P. glabrata* Sw., a West Indian species.

Psychotria casiquiaria Muell. Arg. in Mart. Fl. Bras. 6^5: 324. 1881.

Type from the Río Casiquiare, near the Río Negro, *Spruce 3436*.

Branchlets glabrous; stipules 2–2.5 mm. long, connate at the base, the lobes linear-lanceolate; petioles about as long as the stipules, the blades lance-ovate or elliptic, 6–7 cm. long, 2.7 cm. wide, acute at each end, glabrous, with 9–10 pairs of veins; inflorescence terminal, capitate-cymose, 2 cm. broad or more, umbelliform, short-pedunculate, the lower bracts broadly ovate, acute, reddish, 5 mm. long, costate-striate, the inner ones equaling the dense flower heads, 4–6-fid, their lobes triangular; calyx obtusely 5-lobate, ciliate; corolla pubescent, 3.5 mm. long, the lobes equaling the tube.

Psychotria ceratantha, sp. nov.—Frutex, ramulis gracilibus fuscis, novellis interdum obscure puberulis cito glabratis, internodiis elongatis; stipulae parvae persistentes in vaginam truncatam connatae, vagina in lobos 4 triangulares obtusos desinente; folia subcoriacea mediocria breviter petiolata opposita, lamina oblongo-elliptica vel lanceolato-oblonga longe acuminata basi acuta glabra; inflorescentia terminalis pedunculata cymoso-corymbosa laxe pauciflora, ramis valde adscendentibus glabris vel sparse minute puberulis, floribus in cymulas dispositis sessilibus vel brevissime pedicellatis; calyx brevis ad medium 5-fidus, lobis triangularibus acutis vel acuminatis; corolla tubuloso-infundibuliformis extus minute pulverulacea in alabastro apice 5-cornuta, lobis tubo plus quam duplo brevioribus.

A shrub 2.5 m. high, apparently densely branched, the branches slender, fuscous, subterete, glabrous or the young ones sparsely and obscurely puberulent, the internodes mostly elongate; stipules erect, persistent, connate into a truncate glabrous sheath 1–1.5 mm. long, the sheath bearing at the apex 4 triangular obtuse lobes of equal length; leaves short-petiolate, thinly coriaceous or thick-membranaceous, opposite, the slender petioles 6–10 mm. long, glabrous; leaf blades oblong-elliptic or lance-oblong, sometimes narrowly elliptic, 4–14 cm. long, 1.7–5 cm. wide, gradually or rather abruptly long-acuminate, with a narrow attenuate acumen, acute at the base, glabrous, yellowish green on the upper surface and somewhat lustrous, the costa and veins prominent, beneath slightly paler, the costa slender, elevated, the veins about 9 pairs, slender, prominent, ascending at a rather wide angle, oblique, arcuate, extending to the somewhat revolute margin, the veinlets few and obscure; inflorescence

terminal, pedunculate, cymose-corymbose, laxly few-flowered, erect, 2–3 cm. long and broad, the peduncle 1–1.5 cm. long, sparsely and minutely puberulent, the branches few, strongly ascending, the basal ones subopposite, sparsely and minutely puberulent or glabrate, the bracts minute, subulate, inserted above the base of the branches, the flowers disposed in few-flowered cymules, sessile or on stout pedicels scarcely 1 mm. long; hypanthium thick, 1 mm. long, the calyx of equal length and much broader, 5-fid to the middle, the teeth triangular, acute or acuminate; disk thick-annular, shorter than the calyx; corolla white, in bud with 5 short hornlike appendages at the apex, minutely pulverulent outside, the rather stout tube 7–8 mm. long, slightly dilated upward, not barbate in the throat, the 5 lobes triangular-oblong, 4 mm. long, obtuse, glabrous within, spreading or recurved; anthers short-exserted, linear, 4 mm. long, the slender filaments glabrous; fruit white, didymous-globose, 5–7 mm. broad, crowned by the persistent calyx, 2-celled, the pyrenes almost smooth and broadly rounded dorsally, deeply sulcate on the inner face.—Venezuela: Mount Duida, about 15 m. below the summit of Peak No. 7, alt. 2,115 m., *G. H. H. Tate 669* (herb. N. Y. Bot. Gard., type). Desfiladero, 1,800 m., *Tate 712* (Y).

Like so many Psychotrias, the plant has no outstanding characters, but I have not been able to find a match for it among the South American species.

Psychotria chondroloma, sp. nov.—Frutex, ramulis gracilibus subteretibus glabris, internodiis elongatis; stipulae erectae persistentes connatae bilobae, lobis brevibus triangularibus acutis; folia luteo-viridia coriacea breviter petiolata opposita, lamina oblongo-lanceolata longissime acuminata basi acuta glabra, margine incrassato pallido; inflorescentia terminalis dense hirtella pedunculata subumbellata, radiis patentibus vel adscendentibus rigidis cymis 1–3 capituliformibus terminatis, floribus numerosis dense congestis, bracteis foliaceis oblongis vel lanceolatis flores fere aequantibus; corolla infundibuliformis extus dense hirtella.

A shrub 1.5 m. high, glabrous except in the inflorescence, the branches rather slender, subterete, olivaceous or fuscous, the internodes elongate; stipules persistent, erect, indurate, 2.5–5 mm. long, bilobate, rounded or truncate between the lobes, these shorter than the sheath, acute; leaves thick-coriaceous, yellowish green, short-petiolate, opposite, the petioles stout, 5–8 mm. long; leaf blades oblong-lanceolate or sometimes broadly lance-oblong, 9–18 cm. long, 2–6.5 cm. wide, very long-acuminate, acute and often somewhat unequal at the base, with a conspicuous indurate pale margin, rather dull on the upper surface, the costa pale and prominent, the veins obscure, beneath paler, the stout costa elevated, pale, the veins about 12 pairs, unequal, evident but only slightly elevated, divergent at a wide angle, extending to the margin; inflorescence terminal, umbelliform, radiately branched from the base, long-pedunculate, the stout peduncle 3–6 cm. long, hirtellous, erect, the rays 4–5, not

bracteate at the base, spreading or ascending, hirtellous, 1.5 cm. long or shorter, bearing 1–3 dense headlike bracted cymes 1–1.5 cm. broad, the flowers numerous, sessile; bracts numerous, imbricate, oblong or lanceolate, greenish, 3–5 mm. long, almost concealing the flowers, puberulent, obtuse; calyx 5-parted, about 1 mm. long, the segments triangular, acute, hirtellous; disk annular, nearly equaling the calyx; corolla funnelform, 4–5 mm. long, sparsely hirtellous outside, the tube stout, gradually dilated above, not barbate in the throat, the 5 lobes triangular-oblong, about half as long as the tube, obtuse; anthers short-exserted, oblong-linear, 1.2 mm. long.—Venezuela: Mount Duida, Laterite Valley, Savanna Hills, alt. 1,320 m., *G. H. H. Tate 726* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Agüita Slope, 1,050 m., *Tate 700* (Y).

Evidently a relative of *Psychotria transiens* Wernham, described from Mount Roraima, which has an inflorescence similar in structure but glabrous. The leaves of *P. transiens* are conspicuously different in form and venation from those of *P. chondroloma*.

Psychotria concinna Oliver, Trans. Linn. Soc. Bot. II. 2: 276. *pl. 42, f. 8–15.* 1887.

Type from Mount Roraima at 2,100 m., *Im Thurn 163, 320.* From the same locality are reported also *McConnell & Quelch 80, 89, 667.*

Glabrous; stipules free, the lobes erect, subulate; leaves short-petiolate, the blades coriaceous, oval, acute or acutish, 14–24 mm. long, 6–8 mm. wide, the veins 7–10 pairs; cymes 5–8-flowered, short-pedunculate, terminal, the flowers short-pedicellate; calyx lobes minute, ovate; corolla 12–14 mm. long, glabrous outside, the lobes short, ovate.

Psychotria cordifolia HBK. Nov. Gen. & Sp. 3: 365. 1819. *Siderodendron paniculatum* Cham. & Schlecht. Linnaea 4: 26. 1829.

Type from San Baltazar on the Río Atabapo, *Humboldt & Bonpland* (photo. in F). Mueller (in Mart. Fl. Bras. 6[5]: 304. 1881) reports *Spruce 3448* from the region of the rivers Casiquiare, Vasiva, and Pacimoni. The species occurs in British Guiana.

A glabrous shrub; leaves sessile, rigid, yellowish green, triangular-ovate, acuminate, cordate at the base, conspicuously marginate; panicles narrow, terminal, pedunculate, the branches spreading or reflexed; calyx obtusely 4-lobate; corolla 3 mm. long.

The species may be recognized at first glance by the conspicuously margined, sessile, triangular-cordate leaves.

Psychotria coussareoides, sp. nov.—Praeter inflorescentiam glabra, ramulis crassiusculis griseo-ochraceis subteretibus, internodiis brevibus; stipulae in vaginam truncatam persistentem connatae; folia

subcoriacea ternata vel opposita petiolata, lamina oblanceolato-oblonga obtusa vel acuta basin versus longe angustata, supra viridis lucida, subtus pallida; inflorescentia terminalis longe pedunculata cymoso-paniculata sublaxe multiflora, ramis sparse minute puberulis, floribus in cymulas congestis sessilibus, bracteis minutis triangularibus acutis; calyx minutus breviter acute dentatus; corolla glabra parva, lobis 5 ovatis obtusis tubo crasso brevioribus.

Glabrous except in the inflorescence; branchlets rather stout, grayish-ochraceous, subterete, smooth and lustrous, the young branchlets fuscous when dried, the internodes short; stipules united into a thickened truncate sheath 4–5 mm. long, more or less indurate, persistent; leaves subcoriaceous, medium-sized, slender-petiolate, opposite or ternate, the petioles 1.5–2 cm. long; leaf blades oblanceolate-oblong or obovate-oblong, 8–15 cm. long, 3–4.7 cm. wide, acute to obtuse or even rounded at the base, rather long-attenuate to the petiole, deep green and lustrous on the upper surface, the costa and veins somewhat prominent, much paler beneath, the costa slender, elevated, the veins about 10 pairs, slender, prominent, ascending at a wide angle, arcuate, anastomosing along the slightly revolute margin, the ultimate veins rather prominent and closely reticulate; inflorescence terminal, long-pedunculate, cymose-paniculate, rather narrowly pyramidal, 4–4.5 cm. long, rather laxly many-flowered, the lowest branches in whorls of 4–5, bracted at the base, the upper branches short, opposite, puberulent, the peduncle 3–4 cm. long, sparsely puberulent, the bracts mostly small and inconspicuous, triangular, acute, the lowest ones leaflike and as much as 8 mm. long, the flowers sessile in small dense cymules; hypanthium obconic, 1 mm. long, obscurely puberulent, the calyx 0.5 mm. long, shallowly and acutely dentate; corolla white, 4–5 mm. long, obtuse in bud, obscurely pulverulent or almost glabrous, the 5 lobes ovate, obtuse, slightly shorter than the thick tube, the throat not villous; disk thick, annular, much longer than the calyx.—Venezuela: Mount Duida, Agüita, alt. 1,200 m., *G. H. H. Tate 919* (herb. N. Y. Bot. Gard., type; photo. in herb. Field Mus.).

A rather well-marked species, noteworthy for its chiefly ternate leaves, but of uncertain relationship, as is so often the case with species of *Psychotria*.

Psychotria crassa Benth. in Hook. Journ. Bot. 3: 227. 1841.

Caronia, near La Guaira, *Karsten* (L). Roraima, on rocks, 220 m., *Ule 8766* (K). Mount Duida, on slopes at 1,650–1,800 m., *Tate 433* (Y); summit of Peak No. 7, 2,130 m., *Tate 624* (Y). Known only from Venezuela and British Guiana.

A glabrous shrub, apparently either epiphytic or terrestrial, usually 2 m. high or less; stipule sheath persistent, truncate, lax; leaves thick and succulent, subsessile, obovate-oblong to elliptic, acuminate, narrowed to the base, mostly 5–7.5 cm. long; cymes terminal, corymbiform, longer or shorter than the leaves, pedunculate,

trichotomous, the bracts small, lance-subulate; flowers 4-parted, pinkish white or white; calyx teeth acute; corolla 6 mm. long, barbate in the throat, the lobes with short hornlike appendages at the apex; fruit red, translucent.

Tate describes the plant as a tree 6 meters high, and this may be correct, although usually the plants of this group of *Psychotria* are small epiphytic shrubs. In the case of shrubs and trees growing in wet mountain forests, and burdened with epiphytic plants, often it is difficult to determine whether a certain plant is host or epiphyte.

Psychotria cuspidata Bredem. ex R. & S. Syst. Veg. 5: 192. 1819. *P. cornigera* Benth. in Hook. Journ. Bot. 3: 227. 1841.

Type from Caracas, *Bredemeyer*. Colonia Tovar, *Fendler 557* (G, K, M, Y). Between Maracay and Choroni, 1,200 m., *Fendler 1985* (G). Cerro Santa Ana, Paraguana, 300–600 m., *Curran & Haman 677* (Y). Sacupana, *Rusby & Squires 210* (F, B, W, Y). Colonia Tovar, *Karsten* (L). Without locality, *Moritz 846* (B, L). Widely distributed in tropical America.

A slender glabrous shrub or small tree 1.5–3.5 m. high; stipules short, persistent, green, bicuspidate; leaves short-petiolate, usually yellowish green when dried, lanceolate to elliptic-ovate, very long-acuminate, obtuse to rounded at the base or rarely acute; inflorescence terminal, pedunculate, small, corymbose-paniculate, the slender branches ascending or rarely reflexed; calyx truncate; corolla 5 mm. long, glabrous outside, described as either white or reddish; fruit didymous, white or pearly gray.

Psychotria cumanensis H. & B. ex R. & S. Syst. Veg. 5: 191. 1819. —This plant, collected at Cumaná by Humboldt and Bonpland is not a *Psychotria* but a species of *Torrubia* (Nyctaginaceae).

Psychotria diervilloides HBK. Nov. Gen. & Sp. 3: 358. 1819.

Type from Angostura on the Orinoco, *Humboldt & Bonpland*.

Branches glabrous, the younger ones hirtous-pubescent; stipules oblong, rounded at the apex, ferruginous-hirtous, as long as the petioles; leaves "like those of *Diervilla canadensis*," short-petiolate, the blades ovate, acuminate, rounded and subcordate at the base, glabrous and shining above, beneath paler and sparsely hirtous-pubescent, 7.5–8.5 cm. long; cymes terminal and pseudo-axillary, pedunculate, 4-rayed, 2.5 cm. long, the branches villous-hirsute; flowers subternate, the central one sessile; calyx 5-parted; corolla glabrous outside, the lobes scarcely shorter than the tube, the throat villous.

Known to the present writer only from the description.

Psychotria duidana, sp. nov.—Frutex praeter stipulas omnino glaber, ramulis gracilibus fuscis; stipulae persistentes breviter con-

natae, vagina sparse hirtella in lacinias 4 elongatas lineares desinente; folia breviter petiolata opposita, lamina subcoriacea ovato-oblonga vel anguste ovata longe acuminata basi obtusa vel rotundata; inflorescentiae terminales longe pedunculatae cymosae compactae basi nudae et trichotomae, ramis primariis abbreviatis, bracteis magnis ovatis vel lanceolatis flores fere aequantibus, floribus sessilibus; calyx breviter dentatus, dentibus late triangularibus acutis; corolla extus glabra, tubo lobis plus quam duplo longiore.

A shrub 1–1.5 m. high, glabrous throughout except on the stipules, the branches slender, fuscous, terete, the internodes elongate; stipules erect, persistent, united into a sheath 1–2 mm. long, the sheath more or less hirtellous, produced into 4 linear lobes 3–7 mm. long, the lobes often deciduous; leaves short-petiolate, opposite, subcoriaceous, glabrous, the rather slender petiole 5–10 mm. long; leaf blades ovate-oblong or narrowly ovate, 6.5–10 cm. long, 2–3.7 cm. wide, gradually long-acuminate, at the base obtuse or rounded, yellowish green and dull on the upper surface, the costa subimpressed, the veins obsolete, slightly paler beneath, the costa slender, elevated, the veins about 9 pairs, slender, prominent, divergent at a wide angle, arcuate, anastomosing close to the margin, the ultimate veins prominulous and laxly reticulate; inflorescence terminal, cymose, not bracted at the base, 2–2.5 cm. long and of about the same breadth, long-pedunculate, trichotomous at the base, the primary branches 7 mm. long or less, each bearing a few congested sessile flowers subtended by large bracts, the peduncle very slender, 5–7 cm. long; outer bracts ovate or lance-ovate, 9–12 mm. long, acute or acuminate, acutish at the base, ciliate, the inner bracts somewhat narrower, sometimes narrowly lanceolate, slightly shorter than the flowers; hypanthium cylindric, 0.8 mm. long, the calyx 0.8 mm. long and somewhat broader, shallowly dentate, the teeth erect, broadly triangular, acute; corolla white, glabrous outside, the rather stout tube 8–10 mm. long, scarcely dilated above, not barbate in the throat, the lobes triangular-oblong, obtuse, 3 mm. long, spreading or ascending, glabrous within; anthers exserted, linear, 2 mm. long; style filiform, exserted.—Venezuela: Mount Duida, Desfiladero, alt. 1,800 m., *G. H. H. Tate 713* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.).

Related to *P. bracteata* DC., which differs conspicuously in its narrow bracts.

Psychotria durifolia, sp. nov.—Frutex omnino glaber, ramulis ferrugineis dense foliatis; stipulae breviter connatae late triangulares erectae persistentes; folia crasse coriacea sessilia late elliptica usque ad rotundato-ovata apice obtusa vel rotundata et saepius apiculata basi late rotundata vel truncata conspicue obliquinervia; inflorescentiae axillares foliis longiores longe pedunculatae cymosae dense pauciflorae, floribus sessilibus; calyx profunde 5-fidus, lobis late triangularibus vel ovali-ovatis obtusis vel acutis; corolla extus glabra fere ad medium 5-fida, lobis carnosis obtusis intus non barbatis.

A straggling shrub 3 m. high, glabrous throughout, the branches stout, subterete, ferruginous, the youngest ones somewhat 4-angulate, the internodes mostly 1–3 cm. long; stipules erect, persistent, 3 mm. long, short-connate, triangular or broadly triangular, thick, rigid, abruptly short-acuminate; leaves opposite, sessile, thick-coriaceous and stiff, varying from broadly elliptic to rounded-ovate, 1.5–4 cm. long, 1.2–2.8 cm. wide, sometimes as broad as long, broadly rounded to obtuse at the apex and with a short abrupt acute triangular apiculation, at the base broadly rounded or truncate, yellowish green, the costa and veins evident on the upper surface but not elevated, prominent beneath, the costa slender, the veins about 6 pairs, very oblique, arcuate, extending to the margin, the ultimate veins obscure, the under surface pale-punctate, the margins broad and thin; inflorescences axillary, longer than the leaves, cymose, densely rather few-flowered, usually 1–2 cm. wide, commonly 3-rayed, but sometimes condensed and almost headlike, the slender angled peduncles 1.5–3.5 cm. long, ascending, the rays 1 cm. long or less, ascending, the bracts rigid, persistent, triangular or broadly ovate, connate at the base, 1–3 mm. long, acute or acuminate, the flowers sessile, 5-parted; hypanthium obovoid, 0.8 mm. long, the calyx 0.8–1 mm. long, deeply lobed, the lobes broadly triangular or oval-ovate, very variable, acute to rounded at the apex, thick and fleshy; corolla white, 3.5 mm. long, thick and fleshy, not barbate in the throat, the lobes oblong or ovate-oblong, very obtuse, slightly shorter than the broad tube, the corolla in bud rounded at the apex.—Venezuela: Mount Duida, stream side at Central Camp, alt. 1,440 m., *G. H. H. Tate 556* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Moist slopes of Savanna Hills, at 1,340 m., *Tate 757* (F, Y).

The plant is one of striking appearance and of puzzling affinities. Without fruit it is not at all certain that it is properly referable to the genus *Psychotria*, but it can not be referred to any other American group of the family. In its foliage it is somewhat suggestive of *Psychotria cordifolia* HBK., of Venezuela and British Guiana, but in that the inflorescence is terminal and thyrsoid. Axillary inflorescence is infrequent in the genus *Psychotria*, and I know of no species with such inflorescence that remotely resembles the present plant.

Psychotria Eggersii Standl. Field Mus. Bot. 8: 69. 1930.

High ridge north of Caracas, 1,800 m., *Eggers 13187* (F, type; W). El Valle, *Eggers 13187* (W). Caracas, *Warming 164* (W). Cerros de Avila, Distrito Federal, 1,600 m., *E. Pittier 27* (W, Y). Upper Catuche Wood, near Caracas, 1,400 m., *Pittier 9586* (P, W, Y), *7158a* (W). Colonia Tovar, 1,950 m., *Fendler 561* (G, K, M, Y), *561b* (G), *1984* (G, K). Tabay, 2,300 m., moist quebrada, *Gehriger 381* (F).

A shrub 1–1.5 m. high; the branchlets densely scaberulous-puberulent; stipules sheathing, persistent, 1–2 mm. long, mucronate;

leaves petiolate, firm-membranaceous, lance-oblong to elliptic-oblong or elliptic, 4–11 cm. long, 1–3.5 cm. wide, long-acuminate, attenuate to the base, glabrous above, beneath densely puberulent along the veins; inflorescence terminal, pedunculate, thyrsoid-paniculate, dense or lax, many-flowered, 2–5 cm. long, the lower branches opposite, densely puberulent, the bracts inconspicuous, the flowers sessile or short-pedicellate, congested; calyx minutely 4-dentate; corolla white or yellowish, 5 mm. long, sparsely puberulent, with 4 minute appendages at the apex in bud, the lobes about half as long as the tube; fruit subglobose, 3.5–4.5 mm. wide, orange, glabrous.

Psychotria erythrophylla Muell. Arg. Flora 59: 542, 546. 1876; in Mart. Fl. Bras. 6[5]: 329. 1881.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3439*.

Branchlets glabrous; stipules persistent, connate at the base, narrowly triangular, subobtuse, 2 mm. long; leaves almost sessile, the blades elliptic-lanceolate, 6–7 cm. long, 18–24 mm. wide, cuspidate, acute at the base, glabrous, with 9–10 pairs of veins; cymes terminal, pedunculate, composed of few umbellate heads, 5-rayed, the branches not bracteate at base, the bracts inserted on the branches, 5 mm. long, obovate-lanceolate, the flowers sessile; calyx 5-dentate; one cell of fruit abortive, the other subglobose, 3 mm. long.

Psychotria Everardii Wernham, Journ. Bot. 52: 316. 1914.

Type from Roraima, path to upper savanna, *Im Thurn 291*. Mount Roraima, *Jenman 291* (F).

Branchlets glabrous; leaves subsessile, thick, elliptic, 4–7.5 cm. long, 1.7–3.5 cm. wide, obtuse or acutish, glabrous, with about 8 pairs of veins; stipules small, rounded, caducous; inflorescence subcorymbose, pedunculate, many-flowered, 2.5 cm. long and broad, the branches minutely puberulent, the bracts obsolete; calyx minutely denticulate; corolla minutely pubescent, the tube 6 mm. long, the lobes ovate-lanceolate, acute, 2.5 mm. long.

Psychotria fluctuans, nom. nov. *Coffea subsessilis* Benth. in Hook. Journ. Bot. 3: 232. 1841, not *Psychotria subsessilis* Benth. 1852. *Mapouria subsessilis* Muell. Arg. Flora 59: 460. 1876.

Type collected on the Rio Negro, Brazil, *Schomburgk 994*.

Psychotria fluctuans Standl., var. **latifolia** (Muell. Arg.), comb. nov. *Mapouria subsessilis* var. *latifolia* Muell. Arg. in Mart. Fl. Bras. 6[5]: 410. 1881.

Type from the region of the Río Pacimoni, *Spruce 3377*.

Branches ferruginous-pubescent or glabrate; stipules caducous, lance-subulate; leaves short-petiolate, the blades lance-rhombic, 10–

13 cm. long, 3.5–5.5 cm. wide, acuminate at each end, minutely subappressed-hirtellous beneath on the veins; flowers capitate, the heads terminal and axillary, subsessile; calyx truncate; corolla hirtellous at the apex, 6 mm. long, the lobes one-third as long as the tube.

Psychotria fluctuans Standl., var. **angustifolia** (Muell. Arg.), comb. nov. *Mapouria subsessilis* var. *angustifolia* Muell. Arg. in Mart. Fl. Bras. 6^5: 411. 1881.

Type from the region of the rivers Casiquiare and Vasiva near the Río Negro, *Spruce 3359*.

Leaves lanceolate, 10–17 cm. long, 2–6 cm. wide, glabrous beneath; fruit 6 mm. long.

Psychotria fortuita Standl. Field Mus. Bot. 7: 94. 1930.

Near Colonia Tovar, *Fendler 562* (K, M), *563* (G, K, M); at 1,500 m., *Fendler 564* (G); at 1,800–2,000 m., *Allart 483* (Y); at 2,000–2,100 m., *Pittier 10014* (Y, W), *9309* (W, Y). Between El Aguacatal and Alto del Cogollal, Distrito Federal, in forest, 1,400–1,600 m., *Pittier 9243* (G, P, W, Y). Also in the mountains of Colombia.

A shrub 1–3.5 m. high, the branchlets glabrous; stipules caducous, ovate, obtuse to acuminate; leaves short-petiolate, the blades lance-oblong, 6–15 cm. long, 2–4.5 cm. wide, long-acuminate, at the base acute or abruptly narrowed and decurrent, glabrous above, sparsely barbate beneath in the axils of the veins, the lateral veins about 12 pairs; inflorescence terminal or pseudo-axillary, pedunculate, cymose-paniculate, 4–10 cm. broad, laxly many-flowered, the lowest branches verticillate, the flowers pedicellate or rarely sessile, the bracts minute, deciduous; calyx remotely 5-dentate, 0.5 mm. long; corolla white or greenish white, 3–3.5 mm. long, glabrous outside, the lobes obtuse, half as long as the tube.

Psychotria Franquevilleana Muell. Arg. in Mart. Fl. Bras. 6^5: 325. 1881.

Type from the Río Pacimoni, *Spruce 3378*.

Branchlets glabrous; stipules 8 mm. long, connate, the lobes broadly ovate, bifid at the apex; leaves petiolate, the blades broadly lanceolate, 20–25 cm. long, 6–8 cm. wide, acuminate at each end, glabrous, with 12–14 pairs of veins; inflorescence terminal, long-pedunculate, broadly ovoid, the branches each bearing 3 pedunculate heads, the outer bracts of the heads rhombic-obovate, the heads subglobose, glabrous; calyx truncate and subentire.

Psychotria grandis Sw. Prodr. Veg. Ind. Occ. 43. 1788.

Near Colonia Tovar, 750 m., *Fendler 547* (G); *1982* (G; determination doubtful). Colombia to Central America and the West Indies.

A nearly glabrous, large shrub or small tree; stipules large, broadly ovate, cuspidate-acuminate, subpersistent; leaves almost sessile, large, cuneate-obovate or oblong-obovate, abruptly short-acuminate, attenuate to the base, glabrous; inflorescence terminal, long-pedunculate, cymose-paniculate, radiately branched at the base, the branches minutely puberulent, the bracts deciduous; flowers sessile; calyx obscurely denticulate; corolla whitish, 3 mm. long, glabrous outside, barbate in the throat.

Psychotria guaremalensis Standl. Field Mus. Bot. 8: 70. 1930.

Outskirts of forests along brook, Upper Guaremales, road from Puerto Cabello to San Felipe, Carabobo, *Pittier 8989* (W, type; G).

A shrub with glabrous branches; stipules persistent, connate into a sheath 2.5–4 mm. long, the segments linear-subulate, 4–7 mm. long; leaves short-petiolate, the blades oblong or oblong-elliptic, 15–19 cm. long, 5–8 cm. wide, long-acuminate, obtuse or acute at the base, glabrous, pale-margined, with about 10 pairs of veins; inflorescence terminal, long-pedunculate, broadly and laxly cymose-paniculate, 7–9 cm. long and 8–11 cm. broad, many-flowered, the branches opposite or alternate, glabrous or sparsely and minutely puberulent, dichotomous, the branches spreading or recurved, the flowers sessile, secund; calyx remotely 4-denticulate; corolla purplish, sparsely pilosulous, 5 mm. long, with 4 hornlike appendages at the apex in bud.

Differing from *P. patens* in the broader inflorescence with much longer and more divided branches, and in the pubescent, appendaged corolla.

Psychotria hebeclada DC. Prodr. 4: 513. 1830.

Between Maracay and Choroni, margin of river, 600 m., *Fendler 2342* (G, K, M). Near Colonia Tovar, *Fendler 560* (G, K). Puerto Cabello, *Karsten* (L). Ranging from Mexico to Ecuador.

A shrub sometimes 3 m. high, the young branches densely puberulent; stipules short, green, persistent, bidentate; leaves thin, petiolate, ovate to oblong-elliptic, long-acuminate, acute or attenuate at the base, finely pubescent, at least beneath; inflorescence terminal, pedunculate, thyrsoid-paniculate, dense, many-flowered, densely pubescent; calyx 5-lobate, the lobes short, ovate, acute or obtuse; rachis purple; corolla white, 5 mm. long, pubescent; fruit glabrate, subglobose, 4 mm. long.

Psychotria Hoffmannseggiana (R. & S.) Muell. Arg. in Mart. Fl. Bras. 6[5]: 336. 1881. *Cephaelis Hoffmannseggiana* R. & S. Syst. Veg. 5: 214. 1819.

Agüita, Mount Duida, 930 m., *Tate 898* (Y). Also in the Guianas and Amazonian Brazil.

A shrub with glabrous branches; stipules 1 mm. long, the lobes triangular-lanceolate, green, persistent; leaves short-petiolate, the

blades oblong-ovate, 3–7 cm. long, 1–2.3 cm. wide, cuspidate-acuminate, acute at the base, glabrous, with 8–10 pairs of veins; inflorescence terminal, cymose, short-pedunculate, small, contracted into a bracteate head, the peduncle minutely puberulent, the bracts lance-rhombic, 4–5 mm. long, longer than the fruits; calyx minutely and obtusely 5-dentate; corolla white; fruit purple, compressed-globose, 3 mm. long.

Psychotria horizontalis Sw. Prodr. Veg. Ind. Occ. 44. 1788. *P. divaricata* H. & B. ex R. & S. Syst. Veg. 5: 191. 1819. *P. glaucescens* HBK. Nov. Gen. & Sp. 3: 358. 1819.

Type of *P. glaucescens* from Angostura, *Humboldt & Bonpland* (photo. in F). The type of *P. divaricata* is probably the same. Perijá, Zulia, *Tejera 13* (W). Colonia Tovar, *Fendler 567b* (G, K, M, Y), *567* (G, K, M), *566* (G), *562* (G). Upper Guaremales Road, Carabobo, 100–500 m., *Pittier 8913* (G, W). Río Catuche, near Caracas, *Eggers 13318* (W). Mamo Electric Plant, Distrito Federal, *Pittier 11081* (W). Quebrada de las Comadres, Miranda, 1,200 m., *Allart 261* (W). Caracas, *Bailey 501* (W). Cerro Santa Ana, Paraguana, 300–600 m., *Curran & Haman 673* (G). Chacaito Gorge near Caracas, *Pittier 9495* (G, W). Los Chorros, *Eggers 13082a* (W). Río Santa Bárbara, *Christ 18* (Y). Prov. Carabobo, *Funck & Schlim 529* (P). Extending to Ecuador, the West Indies, and Mexico.

A slender shrub 1–3 m. high, glabrous or nearly so; stipules caducous, ovate-triangular, acute or obtuse, 3–8 mm. long; leaves short-petiolate, the blades elliptic to oblong-lanceolate, acuminate, acute or obtuse at the base, bright grayish green when dried, glabrous or nearly so; inflorescence terminal, pedunculate, small and rather few-flowered, usually 5-rayed at the base, the branches puberulent, the flowers chiefly sessile, the bracts minute, caducous; calyx deeply 5-lobed; corolla white, 3–4 mm. long, glabrous; fruit red, glabrous, 4 mm. long.

This is one of the most common and widely distributed of tropical American *Psychotria* species, growing usually in the lowlands. It also is one of the species most easily recognized, although having rather mediocre foliage, on account of the deeply lobed calyx.

Psychotria hyptoides Benth. in Hook. Journ. Bot. 3: 231. 1841.

Reported by Schomburgk (Fl. Brit. Guian. 1080. 1848) from Mount Roraima. The type was collected in the Parime Mountains of British Guiana.

Glabrous except for the rufous-pubescent inflorescence; leaf blades oblong-elliptic, short-acuminate, narrowed at the base, coriaceous, marginate; stipules persistent, minutely bidentate; peduncles rufous-pubescent, racemose or subradiately branched, the cymes capitate; bracts broadly ovate, imbricate, 6–8 mm. long, concave, rufous-villous, about equaling the corolla, this glabrous, not bearded in the throat.

Psychotria Imthurniana Oliver, Trans. Linn. Soc. Bot. II. 2: 276. *pl. 42, f. 1–7.* 1887.

Type from upper slope and ledge of Mount Roraima, at 2,100 m., *Im Thurn 163, 320.*

Glabrous; leaves subsessile, narrowly lanceolate or linear-lanceolate, yellowish, 3.5–5.5 cm. long, 12–18 mm. wide, acuminate, obtuse or subcordate at the base, with 10–15 pairs of veins; stipules short, connate at the base, deltoid-subulate; cymes terminal, pedunculate, 9–15-flowered, rather lax, the bracts obsolete; flowers 4–5 mm. long; calyx 4-dentate, the teeth deltoid; corolla barbate in the throat, the lobes ovate, half as long as the tube.

Psychotria inundata Benth. in Hook. Journ. Bot. 3: 229. 1841.

San Antonio de Orinoco, Amazonas, humid forest, 100 m., *Holt & Gehriger 251* (F). Reported by Mueller (in Mart. Fl. Bras. 6[5]: 310. 1881) from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce 3193, 478.* Reported also (Oliver, Trans. Linn. Soc. Bot. II. 2: 276. 1887) from upper slopes of Roraima, at 1,050 m., *Im Thurn 83.* The species ranges from Panama to the Guianas and Amazonian Brazil.

A shrub, the branchlets glabrous; stipules persistent, 8–11 mm. long, the lobes lanceolate, connate below; leaves short-petiolate, the blades oblong-elliptic to lanceolate, 8–13 cm. long, cuspidate-acuminate, subcuneate at the base, glabrous, with 13–17 pairs of conspicuous pale veins; inflorescence terminal, paniculate, pedunculate, about 3 cm. long or sometimes larger, pubescent, the bracts narrowly lanceolate, 4–5 mm. long or more, pale; calyx 5-denticulate; corolla white, glabrous outside, 8–9 mm. long, the lobes about equaling the tube.

Psychotria involucrata Sw. Prodr. Veg. Ind. Occ. 45. 1788.

Esmeralda, 100 m., *Tate 374* (Y). Sacupana, *Rusby & Squires 206* (W, M), *65* (M, W). Perijá, Zulia, *Tejera 257* (W). Widely distributed in tropical America.

A slender shrub, nearly glabrous; stipules short, green, persistent, truncate and biaristate; leaves petiolate, the blades ovate to elliptic, acuminate, contracted and decurrent at the base, glabrous; inflorescence terminal, pedunculate, dense and headlike, few-flowered, rounded, the flowers sessile or nearly so, the outer bracts narrow, longer than the flowers; fruit globose, 4 mm. long, purplish black.

One of the common and widely distributed species of tropical America. Closely related forms in Brazil are doubtfully distinct specifically.

Psychotria ligustrina Willd. ex R. & S. Syst. Veg. 5: 188. 1819. *P. borjensis* HBK. Nov. Gen. & Sp. 3: 357. 1819. *Mapouria borjensis* Muell. Arg. Flora 59: 459, 466. 1876.

Type from San Borja, on the Orinoco, *Humboldt & Bonpland.* The type of *P. borjensis* (photo. in F) is apparently the same collection. Mueller (in Mart. Fl. Bras. 6[5]: 405. 1881) reports also *Spruce 3214* from Esmeralda. The species occurs in adjacent Brazil.

A tree with glabrous branches; stipules caducous, triangular, acuminate; leaves short-petiolate, glabrous, the blades ovate-lanceolate, acuminate, acute at the base, with 9–12 pairs of veins, 7.5–8.5 cm. long, about 2 cm. wide; inflorescence paniculate, terminal, pedunculate, broadly thyrsoid, the bracts linear-lanceolate, the flowers sessile; calyx cupular, 5-fid, the lobes triangular; corolla glabrous or minutely puberulent outside, small, barbate in the throat, the lobes slightly shorter than the tube.

Psychotria Lindenii Standl. Field Mus. Bot. 8: 71. 1930.

"New Granada" (but probably from Venezuela), *Linden 1419* (K, type; F). Río Canaguá, *Christ 22* (W). Perhaps also in Colombia.

A shrub with glabrous branches; stipules persistent, connate into a sheath 1–2 mm. long, the 4 lobes subulate, 4–6 mm. long; leaves subsessile, the blades oblong to ovate-oblong or oblanceolate-oblong, 7–12 cm. long, 2–4.5 cm. wide, long-acuminate, obtuse or subrounded at the base, glabrous or beneath sparsely and minutely puberulent on the veins, the veins 8 pairs; inflorescence terminal, pedunculate, cymose-capitate, densely many-flowered, 1.5 cm. long and 2.5 cm. broad, the peduncle erect or subrecurved, minutely puberulent; bracts linear or lance-linear, 10–15 mm. long, long-attenuate, glabrous; flowers sessile; calyx 4-dentate; corolla glabrous outside, the tube 5 mm. long, not barbate within, the 4 lobes 2 mm. long.

Psychotria longirostris (Rusby) Standl. Field Mus. Bot. 7: 101. 1930. *Rudgea longirostris* Rusby, Descr. N. Sp. S. Amer. Pl. 143. 1920.

Colonia Tovar, 1,950 m., *Fendler 568* (G, K, M, Y); *Karsten 2* (B). Also in Colombia.

A shrub 2–4.5 m. high; stipules persistent, 2.5–3.5 mm. long, short-connate, bidentate at the apex; leaves slender-petiolate, the blades narrowly elliptic-oblong or rarely elliptic-oblong, 7–12.5 cm. long, narrowly long-acuminate, acute at the base, glabrous or sometimes minutely pilosulous beneath along the costa; inflorescence terminal, sessile or pedunculate, broadly paniculate, the flowers sessile; calyx truncate and obsoletely denticulate; corolla white or greenish yellow, 6 mm. long, glabrous or minutely puberulent; fruit blue, 4 mm. long.

Psychotria lupulina Benth. in Hook. Journ. Bot. 3: 230. 1841.

Along the Orinoco, *Chaffanjon* (P). Left bank of the Río Casiquiare at Quemapure, *Tate 167* (Y). Mueller (in Mart. Fl. Bras. 6[5]: 317. 1881) reports *Spruce 3109* (in part) from San Carlos. The species ranges from Colombia to the Guianas, Brazil, and Bolivia.

A shrub with glabrous green branches; stipule sheath 3 mm. long, the lobes dentiform, persistent; leaves subsessile, broadly ovate to elliptic or obovate, acuminate, rounded to acute at the base, glabrous; inflorescence terminal, pedunculate, cymose-capitate, the bracts large and foliaceous, rhombic-lanceolate, ciliate, 6–14 mm. long, green or pale, acute or acuminate; peduncles pubescent; calyx minutely 5-dentate; corolla white, glabrous outside, 1 cm. long, the lobes two-thirds as long as the tube.

Psychotria lupulina Benth., var. **stipulacea** Muell. Arg. in Mart. Fl. Bras. 6[5]: 317. 1881.

Type collected near San Carlos on the Río Negro, *Spruce 3109*, in part.

Lobes of the stipule sheath subulate, 2–4 mm. long; panicles somewhat broader than in the typical form, the bracts somewhat larger and more rigid.

Psychotria macrophylla R. & P. Fl. Peruv. 2: 56. *pl. 202, f. a.* 1799. *P. anomothyrsa* Schum. & Donn. Smith, Bot. Gaz. 35: 3. 1903.

El Portachuelo, Aragua, 1,100 m., *Pittier 11811* (W), *11814* (W), *10134* (W). Upper Catuche Wood near Caracas, 1,400 m., *Pittier 9583* (W, G, Y). Colonia Tovar, 1,050 m., *Fendler 2599* (G); 1,200–1,800 m., *Fendler 545* (G, K, M, Y). Tabay, 2,600 m., in forest, *Gehriger 428* (F). Extending to Bolivia and southern Mexico.

Plants suffrutescent, 1–2 m. high, erect or ascending, usually simple, glabrous or nearly so; stipules short, broad, apiculate, caducous; leaves large, petiolate, somewhat succulent, elliptic to lance-oblong, acuminate, acute to attenuate at the base, glabrous or pruinose-puberulent beneath on the veins; inflorescences axillary, pedunculate, paniculate, open or dense, the branches often reflexed, glabrous or minutely puberulent, the flowers sessile, the bracts minute; calyx denticulate; corolla whitish or yellowish, glabrous, 4–5 mm. long; fruit 4–5 mm. long, glabrous, orange, yellow, black, or white (according to the collectors' notes).

Psychotria microbotrys Ruiz ex Standl. Field Mus. Bot. 8: 204. 1930.

In forest, Motoekorunya, Río Canaracuni, *Koch-Grünberg 21* (B). Also in Peru and Bolivia.

A shrub or tree 1–6 m. high, glabrous except in the inflorescence; stipules persistent, 14–17 mm. long, bifid almost to the base, the lobes lance-triangular, long-acuminate; leaves petiolate, the blades elliptic-oblong to elliptic, 14–24 cm. long, 7–11 cm. wide, acute, at the base acute to almost rounded and abruptly contracted; inflorescence terminal, broadly thyrsoid-paniculate, pedunculate, laxly many-flowered, the slender branches glabrous or sparsely and minutely puberulent, the flowers often somewhat secund, sessile or nearly so; calyx lobes broadly rounded; corolla white, glabrous out-

side, 2.5 mm. long, the lobes equaling the tube; fruit glabrous, globose, 3 mm. long.

Psychotria maypurensis H. & B. ex R. & S. Syst. Veg. 5: 190. 1819. *Patabea alba* HBK. Nov. Gen. & Sp. 3: 375. 1819. *Cephaelis cymosa* Spreng. Syst. Veg. 1: 749. 1825.

Type from Maipures on the Orinoco, *Humboldt & Bonpland.* Also at San Fernando (ex HBK.) (photo. of type ex herb. Berol. in herb. Field Mus.).

A tree with glabrous branches; stipules connate, bifid; leaves subsessile, oblong-ovate, about 12.5 cm. long, acuminate, rounded at the base, glabrous, lustrous; cymes terminal, pedunculate, 5-rayed, the branches pubescent, the flowers sessile and glomerate; bracts large, conspicuous, lanceolate, acuminate, pubescent, yellowish, about 12 mm. long; calyx 5-dentate; corolla white, almost 12 mm. long, pilose, villous in the throat.

Psychotria microdon (DC.) Urban, Symb. Ant. 9: 539. 1928. *Rondeletia microdon* DC. Prodr. 4: 408. 1830. *P. pinularis* Sessé & Moc. Fl. Mex. ed. 2. 57. 1894.

Near San Joaquín, Carabobo, 480–1,200 m., *Pittier 7911* (W). El Valle, Margarita Island, *Miller & Johnston 49* (M, W). Colonia Tovar, *Fendler 573* (G, K, M, Y). Quebrada Chiquire, *Eggers 13516* (W). Between El Sombrero and Ortiz, Guárico, *Pittier 12382* (W, Y). Bárbula, Carabobo, 380 m., *Pittier 8935* (G, W). Perijá, Zulia, *Tejera 138* (G, W), *18* (W). Prov. Carabobo, 1,200 m., *Funck & Schlim 685* (P). Ranging from the Guianas to Ecuador, Mexico, and the West Indies.

An almost glabrous shrub, commonly 1–2 m. high, with brittle branches; stipules short, connate, acute, green, persistent; leaves slender-petiolate, thin, the blades acute or acuminate, acute to attenuate at the base; inflorescences terminal, pedunculate, cymose-corymbose, the branches often puberulent; calyx truncate; corolla white, 1 cm. long or less, glabrous outside.

Miller & Johnston 49 has been listed from Venezuela (see Knuth, Init. Fl. Venez. 672. 1928) as *P. horizontalis.* That species and *P. microdon* have been much confused because of a misunderstanding regarding the names, although, as a matter of fact, the two have little or nothing in common. *Psychotria microdon* is one of the most frequent plants of its genus over a large part of northern tropical America. It grows usually at low elevations.

Psychotria oblita Wernham, Journ. Bot. 52: 314. 1914.

Type from Mount Roraima, *Appun 1103.* Wernham reports also *Schomburgk 1018B* and *Im Thurn 185.* Mount Roraima, *Jenman 185* (F).

Glabrous; stipules short-sheathing, bidenticulate; leaves thickish, short-petiolate, the blades elliptic, 4.5–8.5 cm. long, 1.5–3.5 cm. wide, obtuse, the veins 5–9 pairs; cymes subcapitate, few-flowered, about 2.5 by 1.5 cm., the bracts lanceolate, 14 mm. long and 3 mm. wide; calyx minute, with lanceolate teeth; corolla tube 18 mm. long, the lobes lanceolate, 4 mm. long, very obtuse.

According to Wernham, a relative of *P. lupulina*, "but the leaves of our species are much smaller and tougher, the bracts much narrower, &c." The last differential character, a favorite with many botanists, is important and significant!

Psychotria pacimonica Muell. Arg. in Mart. Fl. Bras. 6^5: 337. 1881.

Type from Río Pacimoni, *Spruce 3445*.

Glabrous throughout; stipules short, broad, apiculate, presumably persistent; leaves short-petiolate, the blades lanceolate, 14–18 cm. long, 4–5.3 cm. wide, cuspidate, coriaceous, with 15–17 pairs of veins; inflorescence terminal, erect, pedunculate, capitate, surrounded by an involucre of 4 bracts, these 2–2.5 cm. long, spreading, lance-linear, reddish; calyx truncate and 5-denticulate; corolla 12–15 mm. long, reddish, glabrous, the lobes less than a third as long as the tube.

Psychotria patens Sw. Prodr. Veg. Ind. Occ. 45. 1788. *P. flexuosa* Willd. Sp. Pl. 1: 966. 1798.

"Eleanor Creek," *Rusby & Squires 124* (M, W). Colonia Tovar, 1,200 m., *Fendler 1986* (G). Cerro Santa Ana, Paraguana, 300–600 m., *Curran & Haman 677* (G). Lower Orinoco, *Rusby & Squires 218* (K, W, Y). Caxoeira San Sebastián, Río Casiquiare, *Tate 150* (Y). Capibara, Canal del Casiquiare, Amazonas, 100 m., open forest, *Holt & Gehriger 284* (F). Galipán, Prov. Caracas, *Funck & Schlim 163* (P). Widely distributed in tropical America.

A slender glabrous shrub, ordinarily about 1 m. high; stipules persistent, short, green, the sheath 4-aristate; leaves short-petiolate, yellowish green when dried, the blades lanceolate or lance-oblong, long-acuminate, obtuse to acute at the base, stiff; inflorescence terminal, pedunculate, thyrsoid-paniculate, the very slender branches reflexed; calyx lobes short, triangular; corolla 7 mm. long, white, glabrous outside; fruit white or pale blue.

This is another of the most common and widely distributed of tropical American Psychotrias. It is found chiefly in the more humid lowlands.

Psychotria parasitica Sw. Prodr. Veg. Ind. Occ. 44. 1788. *Viscum pendulum* Jacq. Sel. Stirp. Amer. 73. *pl. 51, f. 1*. 1763. *P. pendula* Urban, Symb. Ant. 1: 445. 1899, non Hook. 1882.

Near Colonia Tovar, *Fendler 2012* (K). Epiphytic in humid forest, El Portachuelo, Aragua, 1,100 m., *Pittier 11823* (W, Y), *10132* (W). Also in the West Indies.

A glabrous shrub, usually or always epiphytic, sometimes trailing or subscandent; stipules united into a truncate papery sheath, persistent; leaves fleshy or leathery, short-petiolate, elliptic or elliptic-oblong, 7–9 cm. long, 3–5 cm. wide, acuminate, rounded to acute at the base; inflorescences terminal or axillary, small, cymose, trichotomous, many-flowered, the flowers short-pedicellate, the bracts minute, triangular; corolla white, 6 mm. long; calyx lobes small, triangular; fruit obovoid-globose, 3–4 mm. long.

Most recent authors have used for this species the name *Psychotria pendula*, but this is not permissible because there is a much older *P. pendula* described by Hooker from the Andaman Islands. Presumably the latter is a valid species, but, even if it is not, under the present rules the name can not be assigned to the West Indian plant.

Psychotria Patrisii DC. Prodr. 4: 510. 1830.

Bocaina de la Palma, *Passarge & Selwyn 689* (B). Also in the Guianas.

A shrub or small tree 1–4.8 m. high, the branches glabrous; stipules large, ferruginous, acutish, caducous; leaves short-petiolate, the blades rather large, oblong or oblanceolate, acute or short-acuminate, attenuate to the base, somewhat lustrous, glabrous; inflorescence terminal, cymose-corymbose, long-pedunculate or rarely sessile, the stout branches ascending, puberulent or glabrate; calyx shallowly and obtusely 5-lobate; corolla white, 4 mm. long, glabrous outside, broadly rounded at the apex in bud, densely barbate in the throat, the lobes almost equaling the tube; fruit conspicuously costate, 5–6 mm. long.

Psychotria persimilis Muell. Arg. Flora 59: 541, 545. 1876.

Raudal de Garecita, between Atures and Maipures, *Gaillard 257* (P). Also in adjacent Brazil.

A shrub 1–2 m. high, glabrous or nearly so; stipules persistent, connate into a short sheath, this provided with 4 setae; leaves short-petiolate, the blades elliptic-lanceolate, caudate-acuminate, with 8–10 pairs of oblique veins; panicles terminal, pedunculate, compact, conspicuously bracted, the bracts whitish or pink, linear or oblong-linear, acuminate, obsoletely ciliate, longer than the flowers; calyx truncate and obsoletely denticulate; corolla red, hispidulous above, the lobes lanceolate, half as long as the tube.

Psychotria phaneroneura, sp. nov.—Praeter inflorescentiam omnino glabra, ramulis crassiusculis; stipulae persistentes erectae breves connatae bilobae, lobis late rotundatis; folia luteo-viridia crasse coriacea breviter petiolata opposita, lamina late ovata vel ovato-ovali mediocri apice acuta usque ad rotundata, basi rotundata; inflorescentia terminalis fastigiato-cymosa dense multiflora longe

pedunculata, ramis minute puberulis, floribus arcte sessilibus, bracteis minutis subulatis; fructus 2-locularis microscopice puberulus, pyrenis dorso obtuse costatis.

Probably a shrub, glabrous except in the inflorescence, apparently densely branched, the branches rather stout, olivaceous, subterete or the younger one somewhat angulate, the internodes mostly 1.5–2 cm. long; stipules erect, persistent, connate, 2 mm. long, bilobate, the lobes broadly rounded; leaves thick-coriaceous, short-petiolate, opposite, yellowish green, the petioles 3–5 mm. long; leaf blades broadly ovate or ovate-oval, 5–6 cm. long, 2.7–4 cm. wide, acute to broadly rounded at the apex, usually broadly rounded at the base, very lustrous on the upper surface, the costa somewhat prominent, the veins mostly subimpressed, somewhat paler beneath, the costa stout, prominent, the veins about 8 pairs, prominent, pale, divergent at a wide angle, arcuate, anastomosing close to the revolute margin, the ultimate veins inconspicuous, laxly reticulate; inflorescence terminal, fastigiate-cymose, erect, long-pedunculate, about 2.5 cm. long and broad, densely many-flowered, the peduncle stout, erect, 2.5 cm. long, minutely puberulent, the branches stout, strongly ascending, densely puberulent, the flowers closely sessile, somewhat secund, the bracts inconspicuous, subulate, 1–2 mm. long; fruit didymous-globose, 3–4 mm. long and somewhat broader, very minutely puberulent, the 2 pyrenes (1 often abortive) obtusely costate dorsally; calyx persistent at the apex of the fruit, minute, obtusely 5-lobate.—Venezuela: Mount Duida, dry laterite soil, Savanna Hills, alt. 1,320 m., *G. H. H. Tate 789* (herb. N. Y. Bot. Gard., type; photo. in herb. Field Mus.).

In foliage the present plant is almost exactly like *Psychotria Tatei*, but the inflorescences of the two species are altogether different. It is rather probable that *P. phaneroneura* should be referred to *Palicourea* rather than to *Psychotria*, but this can not be decided definitely until flowers are available for study.

Psychotria podocephala (Muell. Arg.) Standl. Field Mus. Bot. 7: 109. 1930. *Mapouria podocephala* Muell. Arg. Flora 59: 460, 466. 1876.

Type from the region of San Carlos on the Río Negro, *Spruce 3076, 3682.*

Glabrous; stipules 5–6 mm. long, connate, oblong-ovate, acute; leaves petiolate, spatulate-obovate, 18–23 cm. long, 6–8 cm. wide, cuspidate, coriaceous-membranaceous, with 8 pairs of veins; flowers capitate, the head short-pedunculate, 14–16 mm. in diameter, the outer bracts triangular-ovate; calyx lobes 4–5, broadly ovate, obtuse; corolla 7 mm. long, glabrous outside, barbate in the throat, the lobes one-third as long as the tube; fruit fusiform-ellipsoid, 13 mm. long.

Psychotria racemifera Standl. Field Mus. Bot. 8: 71. 1930.

Along Río Lora, above Camp 2 of Perijá Exploration Company, Zulia, *Pittier 10958* (W, type; Y). Also in Brazil and eastern Peru.

A decumbent shrub 30–40 cm. high, glabrous almost throughout; stipules persistent, the sheath 2 mm. long, the lobes subulate, 2–3 mm. long; leaves short-petiolate, yellowish green, the blades elliptic-oblong or narrowly elliptic, 5.5–10.5 cm. long, 2–4 cm. wide, long-acuminate, acute at the base, with a conspicuous cartilaginous margin, the veins about 9 pairs; inflorescence terminal, pedunculate, the flowers in small heads, these forming a raceme 6.5–7.5 cm. long, the rachis minutely puberulent, the outer bracts oblong or linear, 2–5 mm. long; calyx denticulate; corolla white, glabrous outside, 2.5–3 mm. long, not barbate in the throat, the 4 lobes slightly shorter than the tube, obtuse.

The species belongs in the group of *P. patens* Sw.

Psychotria racemosa (Aubl.) Willd. Sp. Pl. 1: 966. 1797. *Nonatelia racemosa* Aubl. Pl. Guian. 1: 187. *pl. 72.* 1775.

Manoa, *Rusby & Squires 219* (F, M, W). Mount Duida, in forest at foothills camp, 225 m., *Tate 396* (Y). Widely distributed in tropical America, extending northward to Panama.

A shrub 1–2 m. high, the branches puberulent; stipules persistent, bifid, the lobes linear-subulate, green; leaves short-petiolate, oblong-elliptic, acuminate, usually abruptly contracted at the base, nearly glabrous; inflorescence terminal, thyrsiform, short-pedunculate, the short branches minutely hirtellous, the flowers sessile; calyx lobes linear-lanceolate; corolla white, hirtellous; fruit 4–5-celled, 4 mm. long, purplish black.

Among the Venezuelan species this may be recognized at once by its 4–5-celled fruit, that of all or most others being 2-celled. *Psychotria racemosa* is one of the most widely distributed of the American species, and often it grows abundantly in the wet lowlands.

Psychotria rhodothamna Standl. Field Mus. Bot. 8: 201. 1930.

Esmeralda, 150 m., *Tate 948* (Y), *955* (Y). Also in Amazonian Peru and Bolivia.

A shrub or small tree, sometimes 6 m. high, glabrous except for the inflorescence; stipules persistent, 2–3 mm. long, short-connate, the lobes broadly ovate-triangular, obtuse; leaves petiolate, the blades lance-oblong to oblong-elliptic, 9–19 cm. long, 3–8 cm. wide, cuspidate-acuminate, acute or short-acuminate at the base, often reddish-tinged beneath along the veins, the lateral veins about 8 pairs; inflorescence terminal, depressed-cymose, pedunculate, 1.5–3 cm. wide, densely many-flowered, the peduncle glabrous or minutely puberulent, the branches fastigiate, not bracted at the base, the flowers sessile or short-pedicellate; calyx truncate or obsoletely 5-denticulate; corolla white or ochroleucous, 5-tuberculate at the apex in bud, pulverulaceous or glabrous, the tube 8–14 mm. long, the lobes 2.5–3 mm. long; fruit blue, didymous, glabrous, 5–6 mm. broad.

A member of the subgenus *Psychotriopsis*, section *Divaricatae*, one of the most distinctive groups of the genus.

Psychotria rhodoleuca Muell. Arg. Flora 59: 541, 545. 1876; in Mart. Fl. Bras. 6[5]: 314. *pl. 49, f. 1.* 1881.

Type from San Carlos on the Río Negro, *Spruce 3674.* San Antonio de Orinoco, Amazonas, 100 m., humid forest, *Holt & Gehriger 250* (F). Also in adjacent Brazil.

A glabrous shrub or small tree; stipules persistent, the sheath 1–1.5 mm. long, the 4 lobes 3–4 mm. long, subulate; leaves almost sessile, the blades broadly elliptic-lanceolate, 10–15 cm. long, 3–5 cm. wide, cuspidate-acuminate, with 8–9 pairs of veins; panicles terminal, short-pedunculate, compact, conspicuously bracted, the bracts linear-spatulate, acuminate, 12–17 mm. long, reddish at the base, pale above, ciliolate; calyx 5-denticulate; corolla red or yellow, 13–16 mm. long, hispidulous above, the lobes less than half as long as the tube; fruits by abortion mostly 1-seeded, about 3 mm. long.

Psychotria rufescens H. & B. ex R. & S. Syst. Veg. 5: 192. 1819. *P. micrantha* HBK. Nov. Gen. & Sp. 3: 363. *pl. 284.* 1819.

In forests, Maracaibo, *Moritz 970* (B). Ranging to Ecuador and Central America.

A shrub or small tree, the branches rufous-hirsute; stipules large, caducous, brown, bidentate at the apex; leaves petiolate, the blades oblong, oblong-elliptic, or lance-oblong, acuminate, acute or attenuate at the base, softly pubescent, especially beneath; inflorescence terminal, pedunculate, densely pubescent, open-paniculate, radiately branched; calyx lobes short, broad, obtuse; corolla white or greenish yellow, pubescent, 3 mm. long; fruit pubescent, 4 mm. long, conspicuously costate.

Psychotria Sancti-Caroli, sp. nov.—Frutex metralis, paniculis floribusque rubro-purpureis, ramulis crassiusculis obtuse tetragonis dense fulvo-hispidulis; stipulae fere liberae bipartitae erectae persistentes, laciniis lineari-subulatis rigidis 12–15 mm. longis ferrugineis hispidulis; folia majuscula breviter petiolata opposita subcoriacea, petiolo crasso 5–7 mm. longo dense fulvo-hispidulo; lamina oblonga 14–18 cm. longa 4.5–6 cm. lata acuminata basi obtusa et interdum abrupte contracta atque breviter decurrens, supra in sicco fusco-flavescens, ad costam venasque impressas luteo-hispidula, subtus densiuscule praesertim ad venas pilis brevibus lutescentibus nitidulis hispidula, costa gracili elevata, nervis lateralibus utroque latere c. 13 prominentibus gracilibus angulo latiusculo interdum fere recto abeuntibus obliquis arcuatis marginem attingentibus, nervulis prominulis laxe reticulatis, margine plus minusve revoluto; inflorescentia terminalis subcapitato-umbellata crasse 4.5–6 cm. longe pedunculata erecta, radiis 4–5 suberectis validis densissime fulvo-hispidulis 2–2.5 cm. longis 1–2-dichotomis, ramis ultimis brevissimis, floribus ad apices ramulorum capituliformi-congestis numerosis sessilibus, bracteis inferioribus ad basin ramulorum sitis lineari-lanceolatis usque ad 7 mm. longis, illis capitulorum ovatis vel oblongis plerumque 2–3 mm. longis dense hispidulis; hypanthium cum calyce 1.5 mm.

longum dense fulvo-hispidulum, calyce breviter obtuse dentato; corolla in alabastro apice obtusa extus densissime pilis longiusculis lutescentibus patentibus hispidula 6–7 mm. longa, tubo gracili supra vix dilatato, lobis brevibus.—Venezuela: San Carlos, in silvis humilioribus, September, 1853, *R. Spruce 3120* (herb. Kew., type).

A well-marked species, related to *Psychotria fulgens* Muell. Arg. and *P. exannulata* Muell. Arg.

Psychotria santaremica Muell. Arg. in Mart. Fl. Bras. 6^5: 328. 1881.

Esmeralda, 100 m., *Taté 373* (Y). Also in Amazonian Brazil.

A nearly glabrous shrub; stipules persistent, short-connate, the lobes triangular-subulate; leaves rhombic-elliptic, cuspidate, cuneate at the base, glabrous or sparsely and minutely pubescent beneath, the veins 8–11 pairs; panicle terminal, short-pedunculate, 7–8 cm. long, umbellately 5-radiate, the branches naked at the base, the heads 3-bracted, dense, many-flowered, the bracts of the flowers broadly ovate, pilose; calyx cupular, 5-dentate.

Psychotria sessiliflora H. & B. ex R. & S. Syst. Veg. 191. 1819.

The type was collected on the Orinoco by Humboldt & Bonpland. A photograph of the type specimen (ex herb. Berol.) is in the herbarium of Field Museum, but from the photograph alone it is impossible to determine where the species should be placed. It is scarcely a *Psychotria*, but appears to be rather one of the *Spermacoceae*, perhaps a *Mitracarpus*. Humboldt, Bonpland, and Kunth do not mention the name, and it is quite possible that they describe the plant under some other binomial.

Psychotria spiciflora Standl. Field Mus. Bot. 7: 115. 1930. *P. spicata* Muell. Arg. Flora 59: 550. 1876, non Benth. 1841.

San Carlos on the Río Negro, *Spruce 3089*. Also in adjacent Brazil.

Glabrous; stipules persistent, bifid, 2 mm. long, the lobes ovate, acutish; leaves petiolate, the blades lance-ovate, 10–20 cm. long, 4–5 cm. wide, cuspidate, cuneate at the base; inflorescence terminal, almost sessile, spicate, dense, 2 cm. long, the bracts obsolete; calyx obscurely 5-denticulate; corolla red, 15–17 mm. long, 5-gibbous at the apex in bud, the lobes equaling the tube.

Psychotria Spruceana (Muell. Arg.) Standl. Field Mus. Bot. 7: 115. 1930. *Mapouria Spruceana* Muell. Arg. Flora 59: 496. 1876.

Type collected on the Río Negro above the mouth of the Río Casiquiare, *Spruce 3343*.

Branchlets glabrous; stipules connate into a short truncate sheath; leaves short-petiolate, the blades lance-elliptic, 8–12 cm.

long, cuspidate, acute at the base, coriaceous; inflorescence terminal, pedunculate, corymbiform, 2 cm. long and 3–3.5 cm. wide, the flowers sessile or the ultimate ones pedicellate; calyx truncate and obtusely 5-dentate; corolla 5–7 mm. long, pulverulent-tomentulose, the lobes half as long as the tube; fruit ellipsoid, 6 mm. long.

Psychotria Tatei, sp. nov.—Frutex, ramulis crassiusculis subteretibus olivaceis minute puberulis, internodiis brevibus vel elongatis; stipulae persistentes connatae brevissimae breviter bilobae vel subtruncatae, lobis obtusis; folia crasse coriacea breviter petiolata opposita, lamina ovali vel ovato-ovali mediocri vel parva apice obtusa vel rotundata et apiculata, luteo-viridi, supra glabra, subtus ad venas minute pilosula; inflorescentia terminalis sessilis cymoso-paniculata laxe pauciflora pauciramosa, ramis basilaribus reflexis, floribus sessilibus, bracteis minutis vel obsoletis; calyx minutus acute 5-dentatus; corolla anguste infundibuliformis extus dense puberula, lobis tubo duplo brevioribus.

"A low spindling shrub," apparently densely branched, the branches rather stout, subterete or somewhat compressed, olivaceous or fuscous, the internodes sometimes very short and sometimes longer than the leaves, the young branches puberulent or minutely pilosulous; stipules persistent, 2 mm. long, connate, shallowly bilobate, the short erect lobes obtuse; leaves thick-coriaceous, yellowish green, short-petiolate, opposite, the stout petioles 3–7 mm. long, puberulent; leaf blades oval or ovate-oval, 3.5–6.5 cm. long, 2–4.5 cm. wide, or sometimes smaller, some of the leaves nearly as broad as long, obtuse to broadly rounded at the apex and abruptly short-apiculate, rarely acutish, at the base broadly rounded or subtruncate, glabrous on the upper surface and lustrous, the veins subimpressed or at least not elevated, beneath slightly paler, minutely pilose along the costa and veins or later glabrate, the costa stout, sharply elevated, the veins about 7 pairs, prominent, oblique but divergent at a rather wide angle, continued to the margin, the ultimate veins prominulous and laxly reticulate, the margins usually revolute; inflorescence terminal, sessile, cymose-paniculate, laxly few-flowered, 3–3.5 cm. long and somewhat broader, trichotomous from the base, the branches slender, puberulent, the basal ones strongly reflexed, the cymules 2–3-flowered, the flowers sessile or on puberulent pedicels 2–3 mm. long, the bracts minute and inconspicuous; hypanthium broadly cylindric, 1 mm. long, densely puberulent, the calyx 0.7 mm. long, the 5 teeth broadly ovate, acute; corolla white, turning creamy yellow, the lobes pinkish inside, very obtuse in bud, densely puberulent outside, the rather stout tube 8–10 mm. long, very slightly dilated upward, not barbate in the throat, the 5 lobes ascending, oblong, obtuse, 4 mm. long, glabrous within; stamens included; style filiform, glabrous.—Venezuela: Mount Duida, slopes at Central Camp, alt. 1,440 m., *G. H. H. Tate 568* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Slopes at Central Camp, 1,440 m., *Tate 1039* (Y).

The second collection cited has smaller leaves than the type, but otherwise appears to be conspecific. The affinities of *Psychotria Tatei* are altogether uncertain, but it seems to be a well-marked species, notable for the reflexed lower branches of the inflorescence, and for the very thick and handsome leaves.

Psychotria tenuifolia Sw. is listed by Knuth, Init. Fl. Venez. 673. 1928, but for what reason is not apparent, since no Venezuelan records are mentioned. The species is known only from the West Indies.

Psychotria uliginosa Sw. Prodr. Veg. Ind. Occ. 43. 1788.

Between El Aguacatal and Alto de Cogollal, Distrito Federal, 1,000–2,150 m., *Pittier 9237* (G, W, Y). Puerto La Cruz, Distrito Federal, *Pittier 8078* (W). Colonia Tovar, 1,700–2,300 m., *Pittier 9351* (G, W, Y). Near San Joaquín, 480–1,200 m., *Pittier 8026* (W); at 1,200 m., *Fendler 2553* (G). El Portachuelo, Aragua, *Pittier 11365* (W, Y). "Eleanor Creek," *Rusby & Squires 140* (W; distributed as *Rudgea longistipula* Muell. Arg.). Colonia Tovar, 1,800–2,100 m., *Fendler 548* (G, K, M); *Karsten* (L). Galipán, Prov. Caracas, *Funck & Schlim 117* (P). Also in the Guianas, Central America, and the West Indies.

Plants chiefly herbaceous and usually simple, 1.5 m. high or less, glabrous or nearly so; leaves fleshy or leathery, petiolate, the blades obovate or elliptic, 25–30 cm. long, 10–12 cm. wide, acuminate, usually tapering to the base, pale beneath; stipules persistent, somewhat fleshy, short; panicles axillary, long-pedunculate, trichotomous, the flowers densely clustered; calyx 5-dentate; corolla white, 6 mm. long, the lobes half as long as the tube, barbate in the throat; fruit red, 6 mm. long, the nutlets strongly compressed.

The plant is a rather handsome and showy one, growing normally in deep wet forest and usually at low elevations.

Psychotria undata Jacq. Pl. Hort. Schoenbr. 3: 5. *pl. 260.* 1798. *P. rufescens* HBK. Nov. Gen. & Sp. 3: 364. 1819.

Type of *P. rufescens* from Caripe at 1,000 m., *Humboldt & Bonpland.* Prov. Cumaná, *Moritz 389* (B). Colombia to Mexico and the West Indies.

A shrub with rufous-hirsute branches; stipules large, thin, brown, caducous, obtuse; leaves short-petiolate, the blades oblong-elliptic to oblong-obovate, acuminate, acute to attenuate at the base, rufous-pilose, especially beneath, thin; inflorescences terminal and axillary, sessile, short, rufous-pilose, the flowers in small dense glomerules; calyx truncate; corolla white, pubescent, 3–4 mm. long; fruit pubescent, 5 mm. long, the nutlets coarsely costate.

Psychotria vasivensis (Muell. Arg.), comb. nov. *Mapouria vasivensis* Muell. Arg. Flora 59: 460, 466. 1876.

Type from the region of the rivers Vasiva, Casiquiare, and Pacimoni, *Spruce 3334*.

Glabrous or nearly so; stipules 5 mm. long, broadly ovate, acutish, deciduous; leaves long-petiolate, the blades ovate-lanceolate, 10–13 cm. long, 3.5–6 cm. wide, acute, cuneate at the base, thinly coriaceous, the veins 7–10 pairs; panicle terminal, pedunculate, narrow, interrupted-spiciform, the flowers glomerate, the bracts narrowly lanceolate, longer than the calyx; calyx 5-dentate; fruit oblong-ellipsoid, 7 mm. long.

Psychotria vernicifolia, sp. nov.—Ramuli crassi fusci minutissime puberuli, internodiis abbreviatis; stipulae persistentes connatae, vagina ad medium biloba, lobis late rotundatis; folia coriacea opposita breviter petiolata, lamina ovata vel ovato-oblonga parva acuminata basi obtusa vel rotundata glabra; inflorescentiae terminales sessiles e basi trichotomae e cymis 3 dense paucifloris compositae, ramis dense hirtellis, floribus sessilibus, bracteis minutis vel obsoletis; calyx minutus breviter dentatus; corolla tubuloso-infundibuliformis extus dense puberula.

Apparently densely branched, the branches stout, fuscous or somewhat ferruginous, subterete or the younger ones 4-angulate, densely and minutely puberulent, the internodes very short; stipules persistent, erect, 2.5–3 mm. long, connate, bilobate to the middle, the lobes rounded, separated by a broad sinus, glabrous, greenish; leaves thick-coriaceous, yellowish green when dried, short-petiolate, opposite, the stout petiole 3–4 mm. long, puberulent or glabrate; leaf blades ovate or ovate-oblong, 3–5 cm. long, 1.3–2.5 cm. wide, gradually acuminate or long-acuminate, the tip acute, rounded or obtuse at the base, glabrous or when young very minutely puberulent along the costa, lustrous on both surfaces and appearing as if varnished, the costa prominulous on the upper surface, the veins subimpressed, beneath almost concolorous, the costa stout, elevated, the veins about 6 pairs, oblique, ascending at an acute angle, slightly arcuate, anastomosing along the margin, the ultimate veins prominulous and laxly reticulate but inconspicuous, the margins slightly thickened and often revolute; inflorescences terminal, sessile, 3-rayed, the slender rays 1 cm. long or less, hirtellous, each bearing a dense cyme 1 cm. broad or less of rather few sessile flowers, the bracts minute or obsolete; hypanthium obovoid, 0.6 mm. long, minutely hirtellous, the calyx of the same length, shallowly dentate, the teeth broadly ovate, obtuse or acutish, puberulent; corolla densely and minutely puberulent outside, the slender tube 4–5 mm. long, scarcely dilated above, not barbate in the throat, the lobes oblong, obtuse, 1.5 mm. long, spreading, the corolla in bud broadly rounded at the apex; stamens included, the filiform style exserted, puberulent.—Venezuela: Mount Duida, summit of Peak No. 7, alt. 2,130 m., *G. H. H. Tate 628* (herb. N. Y. Bot. Gard., type; photo. in herb. Field Mus.).

Related to *P. Everardii* Wernham, which was described from Roraima, the leaves of the two species being similar in size and shape. In *P. Everardii* the inflorescence is pedunculate, and the leaves have more numerous veins.

Psychotria viburnoides HBK. Nov. Gen. & Sp. 3: 361. 1819.

Type from Atures on the Orinoco, *Humboldt & Bonpland* (photo. and fragm. of type ex herb. Berol. in herb. Field Mus.).

Branches glabrous; stipules caducous, ovate, acute; leaves petiolate, the blades oblong or lance-oblong, about 15 cm. long and 5 cm. wide, obtusely short-acuminate, narrowed to the base, coriaceous, green above, brownish beneath, glabrous; inflorescence terminal, cymose-corymbose, pedunculate, trichotomous, the branches glabrous, the flowers subternate, the central one sessile, the lateral ones short-pedicellate; calyx 5-dentate; corolla glabrous outside, barbate in the throat, the lobes equaling the tube.

69. PALICOUREA Aubl.

Palicourea andaluciana Standl. Field Mus. Bot. 8: 220. 1930.

Tabay, 2,300 m., moist quebrada, *Gehriger 388* (F). Also in Colombia.

A shrub or small tree, said to be sometimes 10 m. high, the branchlets glabrous; stipule sheath 3–4 mm. long, the lobes very short or obsolete; leaves petiolate, the blades subcoriaceous, oblanceolate-oblong, 6–13 cm. long, 2–4 cm. wide, abruptly acuminate, narrowed to the base; inflorescence sessile or pedunculate, broadly cymose-paniculate, more or less corymbiform, 6–11 cm. long and broad, the branches sparsely puberulent or glabrate, the flowers sessile or pedicellate; calyx short, remotely and unequally dentate; corolla 11–12 mm. long, densely and minutely puberulent, the lobes obtuse, 2 mm. long; fruit ellipsoid, 5 mm. long, glabrous.

Palicourea angustifolia HBK. Nov. Gen. & Sp. 3: 367. 1819. *Psychotria stenophylla* Spreng. Syst. Veg. 1: 744. 1825. *Palicourea querceticola* Schum. & Krause, Bot. Jahrb. Engler 40: 332. 1908. *Palicourea Moritzii* Wernham, Journ. Bot. 55: 283. 1917.

Type locality given doubtfully as banks of the Orinoco and Río Negro, *Humboldt & Bonpland;* if the species is interpreted correctly, that locality probably is wrong, for the plant grows in the mountains. Cerro de Galipán, *Eggers 13559* (F, W). Caracas, *Birschel* (G). Sanchorquiz to Galipán, 1,700 m., *Pittier 9576* (G, W, Y). Los Venados, near Caracas, *Allart 91* (W, Y). Colonia Tovar, 1,950 m., *Fendler 554* (G, K, M, Y); *Moritz 844* (B, K, L, W; type collection of *Palicourea Moritzii*). In monte El Avila supra Caracas, *Woronow 7451* (L), *7409* (L). Galipán, April, 1854, *Gollmer* (B); *Preuss 1906* (B); *Funck & Schlim 166* (P). Also in the mountains of Colombia.

A shrub or small tree 1–5 m. high, the branchlets densely puberulent or rarely glabrous; stipule sheath 4–6 mm. long, the lobes subulate, erect, equaling or longer than the sheath; leaves short-petiolate, the blades oblong or oblong-lanceolate, 6–23 cm. long, 2–5 cm. wide, long-acuminate, obtuse or acute at the base, usually puberulent or pilose beneath, at least on the veins; panicle pedunculate, thyrsoid, many-flowered, open or dense, often as long as the leaves, the branches commonly ascending and densely puberulent or pilose, the bracts minute; flowers pedicellate; calyx minute, acutely dentate; corolla tubular, 10–15 mm. long or even longer, usually puberulent or short-pilose but sometimes glabrate; fruit 4–5 mm. long, purple-black.

The color of the corolla is described by the collectors as "purple," "violet-blue," or even "white." The specimens cited are somewhat variable, and they may represent more than a single species.

Wernham recorded the native country of *Palicourea Moritzii* incorrectly as Colombia.

Palicourea apicata HBK. Nov. Gen. & Sp. 3: 367. *pl. 285.* 1819. *Uragoga apicata* Kuntze, Rev. Gen. 1: 300. 1891.

Type from the southern slope of the Silla de Caracas, *Humboldt & Bonpland.* Near Colonia Tovar, *Fendler 556* (G, K, M); *Moritz 1884* (K). Caracas, *Linden 340* (K, P). Prov. Mérida, 1,950 m., *Funck & Schlim 916* (P). Perhaps also in Colombia.

A glabrous shrub; stipule sheath elongate, sometimes longer than the petioles, obscurely bidentate; leaves petiolate, the blades oblong or narrowly elliptic-oblong, 6.5–13 cm. long, 2–4 cm. wide, acuminate, narrowed to the base, subcoriaceous, paler beneath; inflorescence cymose-paniculate, sessile, lax, rather few-flowered, shorter than the leaves, the branches ascending or spreading, the flowers pedicellate; calyx lobes minute, acute or obtuse; corolla 8–9 mm. long, purple, glabrous; fruit subglobose, blue.

Palicourea circinata (H. & B.), comb. nov. *Psychotria circinata* H. & B. ex R. & S. Syst. Veg. 5: 190. 1819. *Palicourea elliptica* HBK. Nov. Gen. & Sp. 3: 369. 1819.

Type of *P. elliptica* from Angostura, *Humboldt & Bonpland.* That of *P. circinata* is probably the same.

Branches glabrate; stipules ovate-lanceolate, entire (?); leaves opposite, short-petiolate, rounded-elliptic, acute, rounded at the base, coriaceous, pubescent beneath, about 9 cm. long; panicles subsessile, 12.5 cm. long, the branches short, sparse, dichotomous, spreading, glabrate, the bracts linear-subulate; flowers pedicellate; corolla glabrous, 8 mm. long, the lobes ovate, obtuse.

Known to the writer only from description.

Palicourea corymbifera (Muell. Arg.) Standl. Field Mus. Bot. 7: 127. 1930. *Psychotria corymbifera* Muell. Arg. in Mart. Fl. Bras. 6^5: 247. 1881.

Reported by Mueller from San Carlos on the Río Negro, *Spruce 3486*. San Carlos, Amazonas, 100 m., in open places, *Holt & Gehriger 291* (F). Also in Brazil and Peru.

Branchlets glabrous; leaves quaternate; stipule sheath 3 mm. long, bidentate, the teeth scarcely 1 mm. long; leaf blades elliptic-lanceolate, 13–20 cm. long, cuspidate, acute at the base, minutely puberulent on the veins; panicle umbelliform, 6–9 cm. broad, the lowest branches verticillate; calyx 10-denticulate; corolla 8 mm. long, ferruginous-tomentulose; fruits 5 mm. broad.

According to notes accompanying specimens collected recently in Peru and at Manaos, Brazil, this is a shrub or tree 2–7.5 m. high; branches of the inflorescence and the calyx bright yellow; corolla red or violet.

Palicourea costata HBK. Nov. Gen. & Sp. 3: 366. 1819.

Type from the banks of the Orinoco and Río Negro, *Humboldt & Bonpland.*

Young branches villous; stipules connate, bifid, the lobes linear; leaves opposite, petiolate, the blades oblong, acuminate, acute at the base, 7.5–8.5 cm. long, 3 cm. wide, membranaceous, reticulate-veined, hirtous beneath on the nerves; inflorescence paniculate, the peduncle 7.5 cm. long, the branches spreading, villous-hirtous, the bracts linear-lanceolate, 8–10 mm. long; flowers pedicellate, 12 mm. long; calyx lobes lanceolate, acute; corolla hirtellous, the lobes oblong, acutish.

Known to the writer only from the original description.

Palicourea crocea (Sw.) R. & S. Syst. Veg. 5: 193. 1819. *Psychotria crocea* Sw. Prodr. Veg. Ind. Occ. 44. 1788. *Uragoga crocea* Kuntze, Rev. Gen. 1: 299. 1891.

Colonia Tovar, *Fendler 558* (G, M), *588* (G), *558b* (G), *554b* (G); alt. 1,700–2,300 m., *Pittier 10062* (G, P, W). Carapas, *Tate 9* (W). Sacupana, *Rusby & Squires 207* (F, M, W). Caño del Guinipa, *Bond, Gillin & Brown 107* (W, Y). Cumaná, *Funck 84* (P); at 1,200 m., *Funck 80* (K, L). Andes of Trujillo and Mérida, *Linden 494* (P). Prov. Mérida, 2,100 m., *Funck & Schlim 1521* (P). Mérida, *Engel* (L). Without locality, *Funck & Schlim 896* (L, P). Widely distributed in tropical America.

A nearly glabrous shrub 1–3 m. high; stipules 3–5 mm. long, the lobes short, linear or subulate; leaves short-petiolate, the blades ovate-oblong or elliptic-oblong, thin, 6–15 cm. long, long-acuminate, acute or obtuse at the base, glabrous or nearly so; panicles sessile or pedunculate, pyramidal, many-flowered, the branches ascending or spreading, glabrous or puberulent, the bracts minute; flowers usually long-pedicellate; calyx lobes minute, ovate or rounded; corolla yellow to orange or red, tubular, 8–12 mm. long, stout, glabrous; fruit 4–5 mm. long.

Palicourea fastigiata HBK. Nov. Gen. & Sp. 3: 368. 1819. *Psychotria fastigiata* Spreng. Syst. Veg. 1: 742. 1825. *Palicourea riparia* Benth. in Hook. Journ. Bot. 3: 224. 1841.

Type from banks of the Orinoco near Atures, *Humboldt & Bonpland* (photo. in F). Los Teques, Miranda, 1,400 m., *Pittier 7503* (W). Río Manimo to Vuelta Triste, *Bond, Gillin & Brown 146* (W, Y). Maipures, *Spruce* (K). San Fernando, on the Orinoco, *Chaffanjon* (P). Without locality, *Funck 168* (K, P). Widely distributed in tropical America.

A shrub or small tree, glabrous or nearly so; stipules usually less than 5 mm. long, bifid, the lobes broad, acute or obtuse; leaves short-petiolate, thin, the blades elliptic-oblong or ovate-oblong, medium-sized, acuminate, acute or attenuate at the base, glabrous; inflorescence pedunculate, cymose-corymbose, small, dense, few- or many-flowered, the branches ascending or erect, usually puberulent; flowers pedicellate; calyx lobes minute, ovate or rounded; corolla glabrous, 8–10 mm. long, tubular, yellow or orange; fruit subglobose, 4–5 mm. long, purple-black.

Pittier reports the vernacular name as "café de monte."

Palicourea Fendleri Standl. Field Mus. Bot. 8: 65. 1930.

Between Maracay and Choroni, 1,650 m., *Fendler 1983* (G, type; K). Puerto Cruz, Distrito Federal, 900 m., *Whitford 59* (G). Caracas, *Birschel* (G, K).

A shrub, the branches glabrous; stipules 3–4 mm. long, short-connate, deeply bifid, the lobes ovate, obtuse or rounded; leaves petiolate, the blades narrowly lanceolate or ovate-oblong, 10–19 cm. long, 3–7.5 cm. wide, long-acuminate, obtuse or acute at the base, thick-papyraceous, glabrous; inflorescence cymose-paniculate or subcorymbose, long-pedunculate, laxly few-flowered, 3–5.5 cm. long, 3.5–7 cm. wide, the branches minutely puberulent; flowers pedicellate; calyx lobes minute, broadly rounded; corolla minutely yellow-tomentose outside; fruit subglobose, 6–7 mm. long, glabrous.

A relative of *P. guianensis*, but differing in its narrow leaves and small stipules.

Palicourea grandiflora (HBK.), comb. nov. *Nonatelia grandiflora* HBK. Nov. Gen. & Sp. 3: 422. 1819.

Type collected in forests of the Orinoco and Río Tuamini, near Javita, *Humboldt & Bonpland.*

A shrub or small tree, the branches glabrous; stipules connate, bifid, 4 mm. long; leaves petiolate, membranaceous, the blades elliptic-oblong, about 20 cm. long, acuminate, acute at the base, glabrous; inflorescence corymbose, terminal, long-pedunculate, the branches pubescent, the bracts minute, subulate, the flowers pedicellate; calyx minute, glabrous; corolla tubular, 2.5 cm. long, pink, pubescent, the lobes acute; fruit oval, 5-celled.

I have seen no material of this species, which belongs to a group well represented in the Amazon Valley.

Palicourea guianensis Aubl. Pl. Guian. 1: 173. *pl. 66*. 1775. *Psychotria guianensis* Rusby, Mem. Torrey Club 3^3: 48. 1893.

San Felix, Táchira, *Curran & Haman 1006* (F, G). Casiquiare, *Spruce* (K). Widely distributed in tropical America.

A nearly glabrous shrub or tree, sometimes 9 m. high, with a trunk 10 cm. in diameter; stipules 8–10 mm. long, biparted, the lobes lanceolate or ovate, obtuse; leaves short-petiolate, large, thin, the blades elliptic-oblong to ovate or elliptic, acuminate, acute to almost rounded at the base, glabrous or nearly so; panicles large, thyrsoid, pedunculate, dense, many-flowered, the branches ascending or spreading, glabrous or puberulent, the bracts subulate, inconspicuous; flowers pedicellate; calyx lobes minute, deltoid, obtuse or acute; corolla yellow or orange, tubular, 10–18 mm. long, densely furfuraceous-tomentose or glabrate; fruit ovoid, 4–5 mm. long.

Curran reports the vernacular name as "cafecito," and states that the wood is used for the framework of thatched roofs.

Palicourea Jahnii Standl. Field Mus. Bot. 8: 65. 1930.

Páramo Quirorá, Mérida, 3,200 m., *Jahn 704* (W, type; G, Y). Páramo de Morro, Mérida, 2,700 m., *Jahn 1064* (W). Páramo del Molino, 2,600 m., *Jahn 939* (W), *952* (W). Laguna Grande, Páramo Mucuchíes, Mérida, 3,300 m., *Bellard 38* (W).

Branches glabrous; stipule sheath 1–2 mm. long, the lobes triangular, 1–1.5 mm. long, appressed; leaves petiolate, glabrous, coriaceous, the blades elliptic, 4–12 cm. long, 2–6 cm. wide, acutish to almost rounded at the apex, acute or obtuse at the base; inflorescence pedunculate, cymose-corymbose, densely many-flowered, 3–6 cm. long and 3.5–8 cm. wide, the branches minutely puberulent; flowers pedicellate; calyx 5-dentate, the teeth broadly triangular, acute; corolla 6–7 mm. long, minutely papillose, the lobes obtuse, 1 mm. long; fruit didymous-globose, 4 mm. long, 5 mm. wide, glabrous, fleshy and juicy.

Palicourea longistipulata (Muell. Arg.) Standl. Field Mus. Bot. 7: 140. 1930. *Psychotria longistipulata* Muell. Arg. in Mart. Fl. Bras. 6^5: 248. 1881.

Type from San Carlos on the Río Negro, *Spruce 3697*.

Branches sparsely puberulent; stipules 12 mm. long, the lobes linear-subulate; leaves short-petiolate, rigidly membranaceous, the blades broadly lanceolate, 6–18 cm. long, cuspidate, acute at the base, villosulous above along the veins, pubescent beneath; inflorescence corymbose, umbelliform, pedunculate, fulvous-pubescent; calyx shallowly 5-lobate, the lobes rounded-obtuse; corolla 8 mm. long, fulvous-villosulous; fruit oblong-ellipsoid, hispidulous, 5 mm. long.

Palicourea lyristipula Wernham, Journ. Bot. 55: 339. 1917.

Mérida, *Moritz* (F). San Jacinto, Prov. Mérida, 1,650 m., *Funck & Schlim 1500* (P). Also in Colombia.

Branches quadrangular, densely pubescent; stipules 13 mm. long, the lobes lanceolate, acute, scarcely equaling the sheath; leaves petiolate, firm-chartaceous, the blades obovate or elliptic, subacuminate, narrowed to the base, 9–17 cm. long, 5–8 cm. wide, pubescent beneath on the veins; inflorescence thyrsoid-paniculate, about 20 cm. long and 7 cm. broad, lax, many-flowered, the branches glabrate, the bracts subsetaceous, small and inconspicuous; flowers mostly pedicellate; calyx lobes oblong-lanceolate, obtuse; corolla glabrous, orange, the tube 12 mm. long, the obtuse lobes 2 mm. long.

Palicourea macrophylla (HBK.) Standl. Field Mus. Bot. 7: 1931. *Nonatelia macrophylla* HBK. Nov. Gen. & Sp. 3: 423. 1819.

Type from forests of the Orinoco near Javita, *Humboldt & Bonpland*. Agüita, Mount Duida, 930 m., *Tate 886* (F, Y). Ranging from British Guiana to Peru and Bolivia.

A tree 3.5–7.5 m. high, the branches glabrous; leaves petiolate, the blades large, broadly elliptic to ovate or oblong-elliptic, abruptly short-acuminate, acute to rounded at the base, glabrous above, sparsely pubescent or glabrate beneath; panicles pedunculate, large, thyrsiform, rather densely many-flowered, the branches rather densely pubescent; flowers pedicellate; calyx 5-dentate, the teeth acute; branches of the inflorescence yellow; corolla yellow or with yellow lobes and white tube, densely short-pilose, 1 cm. long, the lobes short; fruit purple or bluish purple, subglobose, 4–5-celled.

Palicourea macrothyrsa (Muell. Arg.), comb. nov. *Psychotria macrothyrsa* Muell. Arg. in Mart. Fl. Bras. 6^5: 225. 1881.

Type from the region of the rivers Casiquiare, Vasiva, and Pacimoni, *Spruce*.

Stipules triangular-ovate, obtuse, connate below; leaf blades rhombic-ovate, thinly coriaceous, 18–22 cm. long, 10–12 cm. wide, acuminate, acute at the base, with 16–20 pairs of veins, softly pubescent beneath on the veins; panicle 10 cm. long and 7–8 cm. wide, thyrsoid, pedunculate, ferruginous-tomentulose, densely many-flowered; calyx 5-dentate, the teeth very shortly triangular; corolla 2 cm. long, ferruginous-furfuraceous, the lobes one-third as long as the tube.

Palicourea nitidella (Muell. Arg.) Standl. Field Mus. Bot. 7: 142. 1930. *Psychotria nitidella* Muell. Arg. in Mart. Fl. Bras. 6^5: 250. 1881.

Type from San Carlos on the Río Negro, *Spruce 3121*.

Stipules lanceolate, long-acuminate; leaves petiolate, coriaceous, the blades ovate or elliptic, 7–13 cm. long, 2.5–5.5 cm. wide, acutely acuminate, acute at the base, glabrous, with 5–11 pairs of veins;

panicle long-pedunculate, compact, corymbiform, the bracts triangular; calyx obsoletely 5-dentate; corolla 14 mm. long, furfuraceous-tomentulose, the lobes about one-fifth as long as the tube.

Palicourea obscurata (Muell. Arg.) Standl. Field Mus. Bot. 7: 143. 1930. *Psychotria obscurata* Muell. Arg. in Mart. Fl. Bras. 6[5]: 253. 1881.

Type from San Carlos on the Río Negro, *Spruce 3046*. Atabapo, in forest, *Koch-Grünberg 52* (B). Orinoco, *Ayres* (B). San Carlos, Amazonas, 100 m., *Holt & Gehriger 297* (F).

A shrub or small tree with glabrous branchlets; stipules triangular-ovate, 4 mm. long, obtuse; leaves short-petiolate, coriaceous-membranaceous, the blades ovate, 9–16 cm. long, 4–7 cm. wide, cuspidate-acuminate, glabrous, with 9–11 pairs of veins; panicle short-pedunculate, subglobose, 2 cm. long, the flowers minutely pulverulent-tomentulose; calyx obsoletely 5-denticulate; corolla 7 mm. long.

Palicourea obtusata Krause, Notizbl. Bot. Gart. Berlin 6: 210. 1914.

Type from forests of Mount Roraima, at 1,900 m., *Ule 8777* (photo. and fragm. of type, ex herb. Berol., in herb. Field Mus.).

A shrub 1–2 m. high, the branchlets sparsely pubescent; stipules broadly ovate, 5–6 mm. long, divided almost to the middle into 2 linear acute teeth; leaves petiolate, thin-coriaceous, the blades ovate-oblong or ovate-lanceolate, 12–15 cm. long, 5–7 cm. wide, short-acuminate, truncate or subemarginate at the base, pilose beneath, especially along the veins; panicles 6–8 cm. long, the flowers short-pedicellate, the rachis puberulent, purplish; calyx divided almost to the base into 5 teeth 1 mm. long; corolla pale yellow, 7–8 mm. long, sparsely pilose; fruit ovoid, 4–5 mm. long.

Palicourea perquadrangularis Wernham, Journ. Bot. 55: 341. 1917. *P. Lindenii* Standl. Field Mus. Bot. 7: 138. 1930.

Prov. Carabobo, 1,200 m., *Funck & Schlim 542* (P, L, type collection). Without locality, *Funck & Schlim 1297* (L). Colonia Tovar, *Karsten* (L). Galipán, May, 1874, *Kuntze* (W). Between Maracay and Ocumare, Aragua, *Pittier 11809* (B, K, P, W, Y). Near Colonia Tovar, 1,950 m., *Fendler 553* (G, K, M, Y). Carapas, 1,680 m., *Tate 10* (W). Hacienda Puerto la Cruz, Distrito Federal, *Pittier 8077* (W). Mérida, *Moritz 848* (K, L), *972* (B, K). Colonia Tovar, *Moritz 1886* (K). Andes of Trujillo and Mérida, *Linden 281* (K, P). Colonia Tovar, *Karsten 1* (B); *Karsten* (L). Without locality, *Linden 1079* (F). Also in Colombia.

A shrub or small tree, usually about 3 m. high, the branches sharply quadrangular, glabrous; stipule sheath 5–10 mm. long, truncate, biaristate, the aristae as long as the sheath; leaves short-petiolate, thick and firm, the blades elliptic or oblong-elliptic, 12–25 cm. long, 5–11 cm. wide, abruptly short-acuminate, acute at the

base, with many pairs of veins, hirsute-pilosulous beneath along the costa; panicle pedunculate or sessile, thyrsiform, usually elongate (up to 30 cm.) and narrow, the short branches spreading or even reflexed, glabrous, the bracts small and inconspicuous; flowers mostly long-pedicellate; calyx 2.5–3 mm. long, the lobes ovate, obtuse; corolla purple or purplish white, reported also as azure-blue, glabrous, the tube 6 mm. long, the short lobes obtuse; fruit purplish, 5 mm. long.

Wernham (loc. cit.) reports *Pearce 12* from "Muña," which is presumably a Peruvian collection. Its determination is open to question.

Palicourea petiolaris HBK. Nov. Gen. & Sp. 3: 370. 1819. *Psychotria petiolaris* Spreng. Syst. Veg. 1: 745. 1825.

Type from Cerro Tumiriquiri, at 1,000 m., *Humboldt & Bonpland.* High ridge north of Caracas, 1,800 m., *Eggers 13186* (F, W). Los Teques, Miranda, 1,400 m., *Pittier 7512* (W), *10431* (G, W, Y). South of Colonia Tovar, 1,500–1,950 m., *Fendler 555* (G). El Valle, *Eggers 13187* (W). Middle Cotiza, near Caracas, 1,000–1,400 m., *Pittier 7849* (W). Cerro del Galipán, 1,350–1,800 m., *Eggers 13576* (W). Sanchorquiz, 1,500 m., *Eggers 13423* (W). Mountains near Galipán, *E. Pittier 89* (W, Y). Upper Cotiza, near Caracas, *Pittier 7190* (W). Caracas, *Birschel* (G). Galipán, *Allart 162* (W, Y). Cerros del Avila, Distrito Federal, 1,600 m., *E. Pittier 47* (W, G, Y). Hills above Los Teques, Miranda, *Pittier 11615* (P, W, Y). Caracas, *Warming 163* (W). Cumaná, *Funck 88* (K, L, P). Above Guayabo, Prov. Caracas, 1,050 m., *Birschel* (K). El Avila, above Caracas, *Woronow 7212* (F, L), *7464* (L). Galipán, 1,700–1,800 m., *Preuss 1907* (B). San Cristóbal, Prov. Mérida, *Linden 360* (P). San Felipe, Prov. Barquisimeto, *Funck & Schlim 679* (P). Prov. Mérida, 2,100 m., *Funck & Schlim 1520* (P).

A nearly glabrous shrub or small tree, usually 1–3 m. high; stipules 4–6 mm. long, bifid, the lobes short, obtuse or acute; leaves long-petiolate, the blades elliptic or oblong-elliptic, usually acute but sometimes obtuse or even rounded at each end, with numerous pairs of veins, glabrous; panicle long-pedunculate, thyrsoid, minutely puberulent, usually 7–14 cm. long and 5–8 cm. wide, the branches ascending or spreading, the bracts minute; flowers short-pedicellate; calyx lobes minute, rounded; corolla minutely puberulent, 8 mm. long, whitish or greenish yellow; fruit glabrous, 4 mm. long.

In the original description the plant is described as a tree of 18 m., but such a size is altogether improbable in this genus. The vernacular name is reported by Pittier as "café de monte."

Palicourea Pittieri Standl. Field Mus. Bot. 8: 66. 1930.

Silla de Caracas, Distrito Federal, 2,000–2,640 m., *Pittier 8346a* (W, type). Colonia Tovar, 1,950 m., *Fendler 559* (G, M, K, Y);

alt. 2,000 m., *Jahn 450* (W), *1203* (W). Upper belt of Pico de Naiguatá, Miranda, 2,400–2,765 m., *Pittier 6242* (B, W, Y). On high river margin, Lora River, Zulia, *Pittier 10948* (W, Y). Colonia Tovar, in forest, *Woronow 7189* (L). Without locality, *Moritz 376* (L). Mérida, *Engel* (L); *Moritz 974a* (B). Tabay, 2,200 m., moist forest, *Gehriger 406* (F). Andes of Trujillo and Mérida, *Linden 298* (P). Prov. Mérida, 1,800 m., *Funck & Schlim 1520* (P). Prov. Caracas, *Linden 214* (P).

A glabrous shrub 1.5–3 m. high; stipule sheath 1–2 mm. long, the 4 lobes triangular-oblong, 1–2 mm. long, acute; leaves short-petiolate, subcoriaceous, the blades narrowly oblong-lanceolate or lance-oblong, 4.5–13 cm. long, 1–4 cm. wide, long-acuminate or rarely acute, acute or obtuse at the base, glabrous, the veins about 13 pairs; inflorescence pedunculate, cymose-corymbose, dense, few- or many-flowered, 1.5–4 cm. long, the branches minutely puberulent, the bracts subulate, 1–2 mm. long; flowers subsessile or on pedicels as much as 6 mm. long; calyx teeth minute, acute or obtuse; corolla blue or white, 11–17 mm. long, glabrous outside; fruit ovoid-globose, 5–6 mm. long, glabrous, black.

Palicourea rigida HBK. Nov. Gen. & Sp. 3: 370. 1819. *Psychotria rigida* Bredem. ex R. & S. Syst. Veg. 5: 192. 1819. *Psychotria byrsophylla* Spreng. Syst. Veg. 1: 747. 1825.

Type material collected near Quetepe and on Cerro Cocollar, *Humboldt & Bonpland* (photo. in F). Type of *P. byrsophylla* from Cumaná, *Bredemeyer*. Mene Grande, Zulia, *Pittier 10562* (G, W). Valencia, Carabobo, 400–800 m., *Pittier 8738* (G, W). Hacienda de Cura, near San Joaquín, Carabobo, 480–1,200 m., *Pittier 7921* (W). Near Colonia Tovar, 1,650 m., *Fendler 552* (F, G, M). Widely distributed in South America.

A shrub or small tree 2–3 m. high, or often lower, glabrous or nearly so, the branches conspicuously corky-thickened; stipule lobes short, acuminate; leaves opposite, sessile or nearly so, coriaceous, stiff, yellowish when dried, large, elliptic or broadly ovate, acute or short-acuminate, obtuse or rounded at the base; inflorescence long-pedunculate, rounded-ovoid, dense, many-flowered, minutely puberulent or glabrate, the bracts lance-subulate; calyx lobes almost obsolete; corolla yellow, furfuraceous-puberulent, 12–14 mm. long, the lobes very short; fruit 5–6 mm. long, black.

The vernacular name is reported (HBK.) as "chaparro bobo." This species may be recognized readily by the very thick, corky-thickened branches. The binomial *Psychotria rigida* Bredem. presumably is older than *Palicourea rigida* HBK., but since the latter was published without reference to Bredemeyer's name, Bredemeyer should not be inserted in parenthesis as an author of the binomial *Palicourea rigida*.

Psychotria subcrocea Muell. Arg.—This species, which is really a member of the genus *Palicourea*, is listed by Knuth, Init. Fl. Venez. 673. 1928, from Roraima, collected by Ule. I have not seen the collection on which the report is based. The species, however, is doubtfully distinct from *Palicourea crocea*, and the specimen so reported is perhaps referable to that species.

Palicourea triphylla DC. Prodr. 4: 526. 1830. *Psychotria triphylla* Muell. Arg. in Mart. Fl. Bras. 6^5: 233. *pl. 32*. 1881.

Esmeralda, 150 m., *Tate 956* (Y). Ranging from Central America to the Guianas, Trinidad, northern Brazil, and Bolivia.

A shrub 1–2.5 m. high, the terete branches glabrous or nearly so; stipule lobes linear, 6–10 mm. long; leaves ternate, short-petiolate, the blades oblong or obovate-oblong, long-acuminate, usually acute at the base, puberulent, especially beneath, or finally glabrate; inflorescence long-pedunculate, narrowly pyramidal-paniculate, dense, many-flowered, short-pilose, the bracts linear-subulate, the branches orange; flowers pedicellate; calyx red, the teeth obtuse; corolla yellow, furfuraceous-puberulent, 12–15 mm. long; fruit black.

The species may be recognized immediately, among those known from Venezuela, by its ternate leaves.

Palicourea vagans Wernham (Journ. Bot. 55: 281. 1917) was reported by Wernham from Venezuela, upon the basis of *Funck & Schlim 1296*. That collection, however, according to one fully labeled specimen which I have seen, was obtained in Pamplona, Colombia.

70. NERTERA Banks & Soland.

Nertera depressa Banks & Soland. ex Gaertn. Fruct. 1: 124. *pl. 26*. 1788.

Reported by HBK. (Nov. Gen. & Sp. 3: 379. 1819) from the Silla de Caracas, at 1,600 m. It is remarkable that the plant has not been collected in Venezuela by more recent visitors, but I have seen no specimens. The species is widely distributed in the mountains of Central and South America.

A slender creeping herb, forming dense mats on banks and logs, nearly glabrous; leaves opposite, petiolate, rounded-ovate; flowers minute, axillary; fruit a bright red, juicy, globose drupe, containing 2 nutlets.

71. TOBAGOA Urban

Tobagoa maleolens Urban, Repert. Sp. Nov. 14: 343. 1916. *Diodia Ottonis* Schum. ex Pittier, Pl. Usual. Venez. 338. 1926, hyponym.

Mamo Electric Plant, Distrito Federal, in shady woods, *Pittier 11086* (W, Y). Caruao, Distrito Federal, in plantations, *Pittier*

11935 (W, Y). Caracas, *Otto 673* (B, type of *D. Ottonis*). Also in Tobago.

Plants herbaceous or suffrutescent, often 1 m. long, slender, much branched, the stems glabrous; foliage blackening when dried; leaves slender-petiolate, lanceolate, very long-acuminate, commonly 1–2.5 cm. wide, nearly glabrous; flowers white, clustered in the leaf axils; corolla 3 mm. long; sepals 4; capsule 1.5 mm. long, globose, glabrous or nearly so.

"Namú," "peo." The plant is reported to have an offensive odor, suggestive of that of carbon bisulphide.

72. MITRACARPUS Zucc.

Mitracarpus frigidus (Willd.) Schum. in Mart. Fl. Bras. 6^6: 81. 1888. *Spermacoce frigida* Willd. ex R. & S. Syst. Veg. 3: 531. 1818; HBK. Nov. Gen. & Sp. 3: 349. 1819.

Type from the Silla de Caracas, at 1,560 m., *Humboldt & Bonpland* (photo. in F). Near Colonia Tovar, 1,200 m., *Fendler 606* (G, Y); at 1,940 m., *Fendler 607* (G, Y). Between Cotiza and Los Venados, near Caracas, *Allart 45* (W, Y). Mendoza, Trujillo, dry slopes, *Pittier 12629* (W, Y). Silla de Caracas, *Kuntze 1643* (Y). Hacienda de Cura, Carabobo, 480–1,200 m., *Pittier 8011* (W), *7972* (W). Cerro de Galipán, *Eggers 13210* (W). Páramo Agua de Obispo, 2,500 m., *Jahn 1172* (W, Y). Upper Cotiza, near Caracas, 1,400 m., *Pittier 7401* (W). Silla de Caracas, *Lassen 121* (F, W). Pico de Naiguatá, Miranda, 1,200–1,900 m., *Pittier 6281* (W). Between Valera and Monte Carmela, Trujillo, August, 1923, *de Bellard* (W). Silla de Caracas, 2,000–2,600 m., *Pittier 8321* (W). Ranging to Colombia, the Guianas, and Brazil.

A perennial herb, the stems erect or trailing, sometimes 90 cm. long, puberulent or hispidulous; leaves lanceolate, green, pubescent; inflorescence consisting of 5–9 distant globose dense many-flowered subverticillate heads; ovary glabrous; sepals 4, unequal, ciliate, pungent, 2 mm. long; corolla white, 3–4 mm. long, papillose outside; capsule 1 mm. long, glabrous.

Mitracarpus hirtus (L.) DC. Prodr. 4: 572. 1830. *Spermacoce hirta* L. Sp. Pl. ed. 2. 148. 1762. *S. diffusa* Willd. ex R. & S. Syst. Veg. 3: 531. 1818; HBK. Nov. Gen. & Sp. 3: 343. 1819. *S. villosa* Sw. Prodr. Veg. Ind. Occ. 29. 1788. *M. villosus* C. & S. Linnaea 3: 363. 1828.

Type of *S. diffusa* from "locis arenosis Provinciae Varinensis," along the Río Apure, *Humboldt & Bonpland*. Divedive, Trujillo, in savannas, *Pittier 10805* (W, Y). Puerto Escondido, Distrito Federal, arid savannas, *Pittier 13402* (F). Sarare, in 1894, *Geay* (P). Widely distributed as a weed in tropical America.

A slender, erect, usually much-branched annual, hispidulous or glabrate; leaves lanceolate to ovate-oblong, acute, scabrous or villous;

flowers in dense axillary clusters; ovary pilose; sepals unequal, ovate, acute, ciliate, 1.5–2 mm. long; corolla white, 1–2 mm. long; capsule subglobose, bisulcate, pilose, 0.6–0.8 mm. long.

Mitracarpus microspermus Schum. in Mart. Fl. Bras. 6[6]: 83. 1888.

Raudal de Atures, sandy soil, *Gaillard 208* (P). Also in the Guianas, and reported from Guatemala.

A slender annual, usually 10 cm. high or less, simple or branched, the stems pilose; leaves linear, acuminate, 5–10 mm. long, sessile and sometimes subauriculate, aculeolate-serrulate; flowers in globose terminal heads 2–4 mm. in diameter; ovary glabrous; sepals cuspidate, glabrous, 1 mm. long; corolla white, 1–2 mm. long; capsule subglobose, glabrous, 0.5 mm. long.

73. PERAMA Aubl.

Perama dichotoma Poepp. & Endl. Nov. Gen. & Sp. 3: 29. *pl. 235*. 1845.

Reported by Schumann (in Mart. Fl. Bras. 6[6]: 91. 1889) from Roraima, *Schomburgk 968*. Also in Amazonian Brazil.

A slender annual, the stems solitary or geminate, erect, trichotomous, glabrous, filiform; leaves rosulate, oval or ovate, 1.5–3 cm. long, acute, sessile or petiolate, pilose above, pubescent beneath on the veins, the cauline leaves 1–3.5 cm. long; flowers capitate, the heads subglobose, few-flowered; ovary glabrous; sepals ovate, ciliate, 0.5 mm. long, sometimes serrulate; corolla villous in the throat, 2.5 mm. long; capsule trigonous, 1 mm. long; seeds transversely lineolate.

Perama galioides (HBK.) Poir. Dict. Sci. Nat. 38: 414. 1825. *Mattuschkea galioides* HBK. Nov. Gen. & Sp. 2: 272. 1819.

Type from Esmeralda on the Orinoco, *Humboldt & Bonpland*. Grand Savanna, Esmeralda, *Tate 290* (Y). East swamp, Esmeralda, *Tate 266* (Y). Esmeralda, in open savanna, *Tate 180* (Y). Also in Brazil.

Perennial, 35 cm. high or less, perhaps sometimes annual, the stems simple or branched above, hispidulous; leaves ternate, coriaceous, linear-lanceolate, 6–9 mm. long or smaller, sessile, scattered along the stems, glabrous or sometimes ciliate toward the base, 3-nerved; flowers in dense spikes 3–6 mm. long; sepals setaceous, ciliate; corolla 4–5 mm. long, yellow; capsule 1 mm. in diameter, glabrous.

Perama hirsuta Aubl. Pl. Guian. 1: 54. *pl. 18*. 1775. *Mattuschkea hispida* HBK. Nov. Gen. & Sp. 2: 271. 1819.

Atures, *Chaffanjon 177* (P). Sabana de Atures, in moist places, *Gaillard 267* (P). Also in Brazil, British Guiana, and Trinidad.

An annual, 25 cm. high or less, the stems simple or branched, hirsute; leaves cauline, opposite, ovate-lanceolate to oblong or ovate, acuminate, 5–12 mm. long, rounded at the base, sessile, hirsute or rarely glabrate; flowers in terminal heads or dense cylindric spikes 3–7 mm. long; sepals subulate, acuminate, ciliate; corolla yellow, 3–4 mm. long, the lobes ovate-triangular, acute, pilosulous at the apex; capsule trigonous, 1 mm. long, the seeds castaneous, shining.

Perama humilis Benth. in Hook. Journ. Bot. 3: 239. 1841.

Reported by Schumann (in Mart. Fl. Bras. 6^6: 89. 1888) as collected about Roraima by Schomburgk. Recorded from various localities in British Guiana.

A small perennial, the numerous short stems much branched, prostrate, glabrous; the filiform branchlets villous, densely leafy; leaves ovate-oblong, 2–7 mm. long, attenuate-acuminate, sessile and rounded at the base, pilose, 3–5-nerved; flower heads globose, 3–4 mm. in diameter, short-pedunculate; sepals subulate, ciliate; corolla glabrous outside, villous in the throat, yellow; capsule trigonous, glabrous, the seeds trigonous, shining.

Perama plantaginea (HBK.) Hook. f. in B. & H. Gen. Pl. 2: 148. 1873. *Buchia plantaginea* HBK. Nov. Gen. & Sp. 2: 270. *pl. 132*. 1819.

Type collected at Javita, *Humboldt & Bonpland* (photo. in F).

A branched herb, the branches glabrate; leaves rosulate, opposite, short-petiolate, oblong, subacuminate, about 7.5 cm. long, 5-nerved, pilose above, lanate beneath; inflorescence branched, the flowers arranged in glomerate elongate spikes; sepals ovate, acuminate; corolla white, pilose; fruit depressed-globose, trigonous, glabrous.

Perama scaposa Gleason & Standl., sp. nov.—Herba subscaposa, foliis inferioribus oppositis oblongo-ellipticis, superioribus quaternis elliptico-ovatis majoribus, supra undique dense villosis, subtus tantum ad nervos villosis; caules gracillimi repetite dichotomi vel interdum trichotomi glabri fere nudi, bracteis paucis minutis onusti; flores in capitula pauca longipedunculata congesti minuti, bracteolis linearibus paleaceis; hypanthium dense paleaceum, calycis laciniis carnosis late triangularibus acutis glabris; semina minuta globosa laevia.

A slender annual, simple or with 1–2 branches from the base, 10–30 cm. high, the lowest internodes sparsely villous-pilosulous, the upper glabrous; stipule sheath reduced to a slender line; leaves produced near the base of the plant, the lower ones opposite, oblong-elliptic, 5–10 mm. long, the upper leaves in a single whorl of 4, elliptic-ovate, 15–20 mm. long, 5–8 mm. wide, the blades all herbaceous, obtuse or acutish, narrowed at the base into a short broad petiole, densely short-villous on the upper surface with several-celled whitish hairs, beneath obscurely 3-nerved, villosulous along the nerves but elsewhere glabrous; inflorescence several times dichot-

omous or sometimes trichotomous, the branches very slender, glabrous, almost naked and bearing only a few ovate acute bracts scarcely 1 mm. long; flower heads few, the peduncles almost filiform, 1–3 cm. long, glabrous; heads short-oblong, 2–4 mm. long, about 10-flowered, the flowers almost hidden by a mass of linear paleaceous bracts; hypanthium paleaceous-pubescent; calyx segments 2, erect, fleshy, purple-brown, broadly triangular, acute, 0.5 mm. long, glabrous on the back, minutely ciliate, on the anterior side approximate with a narrow sinus, on the posterior side remote with a broad pubescent sinus; seeds 3, globose, 0.7 mm. in diameter, smooth.—Venezuela: Mount Duida, summit of Peak No. 7, alt. 2,130 m., *G. H. H. Tate 664* (herb. N. Y. Bot. Gard., type; duplicate in herb. Field Mus.). Sandy stream bank at Central Camp, Mount Duida, 1,440 m., *Tate 548* (Y). Ridge 23 C, Mount Duida, *Tate 704* (Y). Caño Sapo, 1,860 m., *Tate 597* (Y).

The corolla is described as white in some of the collections, and in one as blue. *Perama scaposa* belongs to the subgenus *Rosella*, which is distinguished by subscapose habit and more or less rosulate leaves. The only other known species of the group is *P. dichotoma* Poepp. & Endl., recorded from the Amazon River and from Mount Roraima. In that the hypanthium is smooth and the seeds are 3-angled and punctate.

74. EMMEORRHIZA Pohl

Emmeorrhiza umbellata (Spreng.) Schum. in Mart. Fl. Bras. 6^6: 408. 1889. *Borreria umbellata* Spreng. Neue Entd. 2: 144. 1821. *Endlichera umbellata* Schum. in Mart. Fl. Bras. 6^6: 38. *pl. 74.* 1888.

Chacaito Gorge near Caracas, *Pittier 9938* (W). Without locality, *Pittier 11506* (W, Y). Petare, 800 m., *Pittier 7721* (W). Colonia Tovar, 1,800–2,000 m., *Allart 316* (W, Y); *Pittier 9341* (W). Caracas, *Bailey 456* (W). Without locality, *Fendler 595* (M), *596* (M). Between Colonia Tovar and Lagonazo, *Pittier 9254* (W). Caracas, *Moritz 1652* (W). Colonia Tovar, in forest, *Woronow 7674* (L). Duaca, *Mocquerys* (P). Extending to Brazil and Bolivia, mostly in the mountains.

A rather large, suffrutescent or herbaceous vine, pubescent to almost glabrous; leaves oblong-lanceolate to elliptic, 5–10 cm. long, conspicuously veined; flowers small, white, arranged in small dense umbels, the umbels disposed in large or small panicles.

In the tribe to which it belongs, this plant may be recognized at once by its umbellate flowers.

75. RICHARDIA L.

Richardia scabra L. Sp. Pl. 330. 1753. *Richardsonia scabra* St. Hil. Pl. Us. Bras. vii. *pl. 8.* 1824.

Dividive, Trujillo, in savannas, *Pittier 10808* (W). Puerto Escondido, Distrito Federal, arid fields, *Pittier 13400* (F). Mariara, 550 m., *Preuss 1502* (B). Widely distributed as a weed in tropical America.

An annual, densely pilose or hispid, usually prostrate and forming small mats; leaves oblong or lanceolate, petiolate; flowers small, white, forming dense clusters at the ends of the branches, the clusters subtended by an involucre of large leaves; fruit of 3 carpels.

I have not seen *Pittier 9038* from Valencia, Carabobo. This is listed by Knuth (Init. Fl. Venez. 676. 1928) as *Richardsonia grandiflora* C. & S. Probably the specimen is really *Richardia scabra.*

76. DIODIA L.

Diodia gymnocephala (DC.) Schum. in Mart. Fl. Bras. 6^6: 16. 1888. *Borreria gymnocephala* DC. Prodr. 4: 549. 1830.

Escuque, Trujillo, *Pittier 13136* (F, G, W). Also in Brazil.

An herbaceous vine, trailing on high bushes, the stems acutely 4-angled, glabrous or puberulent; leaves short-petiolate, ovate or lanceolate, 3–8 cm. long, glabrous or more or less scabrous and pubescent, plicate-nerved, often bullate; flowers in axillary 5–8-flowered clusters; ovary glabrous; sepals 4, subequal, longer than the hypanthium, subulate, 3 mm. long; corolla white, 5 mm. long; capsule turbinate, 4–5 mm. long.

Diodia hyssopifolia (Willd.) C. & S. Linnaea 3: 350. 1828. *Spermacoce hyssopifolia* Willd. ex R. & S. Syst. Veg. 3: 532. 1819.

Sacupana, *Rusby & Squires 31* (F, M, W), *208* (M, W). Ranging to Colombia, the Guianas, and Brazil.

An erect perennial herb; leaves linear-lanceolate, 2–6 cm. long, acuminate, plane, glabrous; flowers clustered and sessile in the leaf axils; sepals 4, subulate, acute, pilose and ciliate, 1 mm. long, connate to the middle; corolla white, 3–4 mm. long; capsule 3–4 mm. long, puberulent at the apex.

Diodia maritima Thonn. is listed by Knuth, Init. Fl. Venez. 677. 1928, but there is no explanation for its appearance in a list of Venezuelan plants. The species may well occur in Venezuela, but I have seen no specimens from that country, nor any record of its existence there.

Diodia rigida (Willd.) C. & S. Linnaea 3: 341. 1828. *Spermacoce rigida* Willd. ex R. & S. Syst. Veg. 3: 531. 1818.

Type collected in dry places near Caracas, at 900 m., *Humboldt & Bonpland.* Culebra Lagoon near San Carlos, Cojedes, in savannas, *Pittier 11696* (W, Y). Near Caracas, *Pittier 11360* (W, Y). Gamboa, near Caracas, in savannas, *Pittier 9606* (W, Y). Lower Cotiza, near Caracas, 800–1,200 m., *Pittier 7278* (W). Upper Cotiza, 1,400 m.,

Pittier 7185 (W). San Lázaro, near Caracas, 800–1,000 m., *Pittier 9752* (W). Valencia, *Warming 169* (W). Without locality, *Fendler 610* (M, Y). Caracas, *Bailey 84* (M). Between Cotiza and Los Venados, *Allart 27* (W, Y, P). Valley of Vijirinia, near Guacara, Carabobo, 500 m., *Pittier 8175* (W). Cotiza, above Caracas, *Woronow 7391* (F, L). Without locality, *Geay 53* (P). Widely distributed in tropical America.

An erect or ascending, stiff, annual or perennial herb, the stems simple or branched; leaves stiff, linear-lanceolate, 2–4 cm. long, scabrous or hispidulous; flowers axillary, sessile, usually solitary; sepals 4, subulate, acuminate, ciliate; corolla lavender, 5–10 mm. long, glabrate outside; capsule 2–3 mm. long, hispidulous or glabrate, the cocci conspicuously 3-costate dorsally and rugose.

Diodia rosmarinifolia Pohl ex DC. Prodr. 4: 564. 1830.

Schumann (in Mart. Fl. Bras. 6^6: 18. 1888) reports *Otto 1084* from Venezuela as belonging to this species. The species is widely distributed in Brazil.

A perennial, erect or prostrate, herbaceous, the branches hispidulous; leaves linear or linear-lanceolate, 2–4.5 cm. long, subauriculate at the base, glabrous above, aculeolate beneath on the costa and also on the margins; flowers axillary, solitary or geminate; ovary glabrous or pilose above; sepals unequal, the larger 1 mm. long; corolla 5–6 mm. long, pilosulous outside; cocci 3 mm. in diameter, 3-nerved, not rugose, glabrous or glabrate.

Diodia sarmentosa Sw. Prodr. Veg. Ind. Occ. 30. 1788.

Sanchorquiz, 1,500 m., *Eggers 13424* (F, W). Torococo, Trujillo, 1,100 m., *Jahn 754* (W). Near Colonia Tovar, *Pittier 9388* (W, Y). Also in the Guianas, Central America, and the West Indies.

Plants large and more or less scandent, trailing over bushes, the stems 4-angled, puberulent; leaves lanceolate or oblong-lanceolate, 3.5–5 cm. long, acuminate, obtuse at the base, aculeolate-serrate, scabrous above, pilose beneath on the nerves; flowers in 6–8-flowered axillary clusters; ovary glabrous; sepals 2–4, ovate, acuminate, ciliate; corolla white, 2 mm. long; capsule glabrous, the cocci 5 mm. long, dorsally 1-sulcate.

Diodia teres Walt. Fl. Carol. 87. 1788.

Dividive, Trujillo, in savannas, *Pittier 10809* (P, W, Y). Caracas, 800–1,000 m., *Pittier 9683* (P, W); *Bailey 223* (W). Pueblo Nuevo, Mérida, 1,700 m., *Jahn 687* (W, Y). La Rubiera, near Calabozo, Guárico, *Grisol 23* (W), *9* (W). Valencia, Carabobo, 400–800 m., in savannas, *Pittier 9012* (W), *9061* (W, Y), *9017* (W). Near Caracas, *Woronow 7262* (L). Meseta, near Tovar, 1,100 m., in savannas, *Pittier 12776* (B). Sabana de Atures, in sand, *Gaillard 130* (P). Raudal de Atures, in sand, *Gaillard 93* (P). Along the Orinoco, *Chaffanjon 166* (P). Extending to Colombia, and northward to the United States, where the species is common.

Annual, stiff, erect or ascending, simple or branched; leaves linear or linear-lanceolate, scaberulous; flowers axillary, solitary or clustered, sessile; corolla white or purplish; capsule minutely and densely appressed-pubescent or sometimes hispidulous, the cocci nearly smooth dorsally, never 3-costate.

Probably *Diodia prostrata* Sw. is a synonym of *D. teres*. The two names have been maintained generally, *Diodia teres* for the plant of the United States and Mexico, and *D. prostrata* for that growing in the West Indies and South America, but there seems to be little if any difference between the forms so named. There is some question as to which of these two names has priority of publication, both having appeared in 1788, but Dr. J. H. Barnhart informs me that Walter's name probably has precedence.

77. HEMIDIODIA Schum.

Hemidiodia ocimifolia (Willd.) Schum. in Mart. Fl. Bras. 6^6: 29. 1888. *Spermacoce ocimifolia* Willd. ex R. & S. Syst. Veg. 3: 530. 1818.

Sacupana, *Rusby & Squires 67* (W). Hills of Guaremales, Carabobo, 100–500 m., *Pittier 8797* (W). Widely distributed in the lowlands of tropical America.

A large perennial herb, erect or procumbent or often subscandent; leaves lanceolate, attenuate to the base, sessile, 3–5 cm. long, rather thick and conspicuously veined, puberulent or glabrate; flowers small, white, sessile and densely clustered in the leaf axils.

This species, the only member of its genus, is one of the generally distributed weeds of tropical America.

78. SPERMACOCE L.

Spermacoce glabra Michx. Fl. Bor. Amer. 1: 82. 1803.

Sanchorquiz, 1,500 m., *Eggers 13446* (W). Cristóbal Colón, *Broadway 455* (W). Upper Catuche Wood, near Caracas, 1,400 m., *Pittier 7156* (W). Widely distributed in tropical America.

A glabrous annual; leaves lanceolate to elliptic, 2–7 cm. long, acute or acuminate, nearly sessile; flowers minute, densely clustered in the leaf axils, white; sepals lanceolate; fruit glabrous, 3 mm. long.

In tropical America this species seems to be less frequent than the next, and both of them, although widely distributed, usually are of sparse occurrence.

Spermacoce tenuior L. Sp. Pl. 102. 1753.

Maracay, Aragua, *Padre Cornelio 138* (W, Y). Middle Cotiza, near Caracas, in savannas, 1,000–1,400 m., *Pittier 7414* (W). Without locality, *Fendler 601* (M). Near Escuque, Trujillo, *Pittier 13142*

(W). Puerto Escondido, Distrito Federal, in meadows, *Pittier 13410* (F). A generally distributed weed of tropical America.

An annual, less than 1 m. high, usually erect, nearly glabrous; leaves short-petiolate, lanceolate or linear, rough; stipular sheath with long bristles; calyx lobes 4, triangular or subulate, much shorter than the fruit; corolla white or often purplish; fruit 3 mm. long, pubescent; seeds black, oblong, minutely roughened.

79. BORRERIA Mey.

Borreria alata (Aubl.) DC. Prodr. 4: 544. 1830. *Spermacoce alata* Aubl. Pl. Guian. 1: 60. *pl. 22, f. 7.* 1775.

Guaremales, a weed in clearings, *Pittier 9141* (W). Also in the Guianas.

A low perennial herb, the stems 4-angled, often prostrate, narrowly winged on the angles and ciliate; setae of the stipules subulate, pilose; leaves yellowish green, short-petiolate, the blades oval or elliptic, 2–4 cm. long, acute, more or less scabrous above, puberulent beneath on the elevated veins; inflorescences axillary, capitate, many-flowered, short-pedunculate or subsessile, the flowers short-pedicellate; sepals 4, oblong or oblong-lanceolate, acute, hirsute and ciliate, about equaling the hypanthium; corolla 2 mm. long, white; fruit 2 mm. long; seeds coarsely punctulate, fulvous.

Borreria capitata (R. & P.) DC. Prodr. 4: 545. 1830. *Spermacoce capitata* R. & P. Fl. Peruv. 1: 61. *pl. 91, f. b.* 1798. *S. ferruginea* St. Hil. Pl. Usu. Bras. *pl. 13.* 1824. *B. ferruginea* DC. Prodr. 4: 547. 1830.

Near Colonia Tovar, *Fendler 604* (G). La Victoria, 550 m., *Preuss 1610* (B). Between Turmero and Chuao, 1,500 m., *Preuss 1635* (B). Mariara, 600 m., *Preuss 1497* (B). Mendoza, Trujillo, dry slopes, *Pittier 12629* (B). Near Mérida, 2,000 m., *Mocquerys 1175* (P). Swampy savannas, Guatitico, in 1894, *Geay* (P). Widely distributed in South America.

An erect perennial herb, densely pubescent almost throughout; leaves linear to lanceolate or oblong, sessile or nearly so; flowers in very dense and many-flowered, chiefly terminal, globose heads; calyx lobes 4, subulate; corolla white, 2–5 mm. long; fruit puberulent at the apex.

The vernacular name is reported by Pittier as "botoncillo."

Borreria densiflora DC. Prodr. 4: 542. 1830. *Spermacoce spinosa* Sw. Obs. Bot. 45. 1791, non Jacq. 1760. *B. spinosa* C. & S. Linnaea 3: 340. 1828, excl. syn.

Santa Rosa de la Tierra, near Maracaibo, *Pittier 11003* (W). Caracas, 900–1,050 m., *Bailey 110* (W). Bobures, *Jahn 383* (W). El Avila, above Caracas, roadside, *Woronow 7449* (L). Widely distributed in tropical America.

A stout stiff erect annual, nearly glabrous, pale green; leaves sessile or almost so, linear-lanceolate; flowers arranged in very large and dense, globose, terminal and axillary heads; calyx lobes 2, linear; corolla white, 2 mm. long.

Borreria hispida Spruce, var. **glabrescens** Schum. in Mart. Fl. Bras. 6[6]: 62. 1888.

Sabana de Atures, sandy soil, *Gaillard 229* (P). Also in Brazil. The typical form of the species is recorded from Pará, Brazil, and French Guiana.

A yellowish green annual, the stems glabrous; leaves linear or linear-lanceolate, 1–2 cm. long, scabrous above, glabrous beneath; flower heads axillary and terminal; sepals 4, equal, elliptic, acute, ciliate; corolla white, 2.5 mm. long; capsule 1 mm. long, puberulent.

Borreria laevis (Lam.) Griseb. Goett. Abh. 7: 231. 1857. *Spermacoce laevis* Lam. Ill. 1: 273. 1791. *S. capitellata* Willd. ex R. & S. Syst. Veg. 3: 530. 1818. *B. capitellata* C. & S. Linnaea 3: 319. 1828. *S. hebecarpa* DC. Prodr. 4: 553. 1830.

El Valle, Margarita Island, *Miller & Johnston 198* (W, M). Cristóbal Colón, *Broadway 403* (W). El Carenero, Miranda, *Pittier 11032* (W). Las Trincheras, *Warming 165* (W). Caracas, *Bailey 182* (W). Río Chico, Miranda, *Jahn 1253* (W). Los Venados, Distrito Federal, *Pittier 10460* (W). Las Mostazas, Miranda, 1,100 m., *Allart 181* (W). La Guaira, *Curran & Haman 895* (W). La Rubiera, Guárico, *Grisol 34* (W, Y). Near Petane, *Box 20* (Y). Near Colonia Tovar, 1,200 m., *Fendler 605* (G, Y). Mountains near Caracas, also Colonia Tovar, 1,200–1,950 m., *Fendler 609* (G, M, Y). Upper Cotiza, near Caracas, 1,400 m., *Pittier 9829* (W). Mucurubá, Mérida, 2,500 m., *Gehriger 205* (F). Widely distributed in tropical America.

An erect or spreading annual; leaves sessile or nearly so, oblong-lanceolate to ovate, bright or pale green, acuminate, more or less pilose beneath, thin; flowers small, white, crowded in dense, terminal and axillary clusters, the terminal ones subtended by 4 large leaves; calyx lobes 4, triangular, minute; corolla 2–2.5 mm. long; fruit pubescent at the apex.

This is one of the most common and abundant weeds of the tropical American lowlands, often growing as a weed in cultivated ground. The type of *Spermacoce hebecarpa*, which probably should be referred to synonymy here, was collected near Caracas by Vargas.

Borreria latifolia (Aubl.) Schum. in Mart. Fl. Bras. 6[6]: 61. 1888. *Spermacoce latifolia* Aubl. Pl. Guian. 55. *pl. 19, f. 1.* 1775.

Mesa de El Sombrero, Guárico, *Pittier 12496* (W); *Woronow 7618* (L). Between El Sombrero and Pítara Bridge, Guárico, in ditch, *Pittier 12502* (W). Mene Grande, Zulia, *Pittier 10564* (W,

Y). Sacupana, *Rusby & Squires 52* (M), *74* (M). Widely distributed in tropical America.

An annual or perennial herb, often procumbent or prostrate, yellowish green when dried, the stems narrowly winged above, glabrous or pubescent on the angles; leaves thick, sessile or nearly so, broadly elliptic, acute, conspicuously nerved, scabrous above, puberulent beneath, at least on the nerves; flowers crowded in dense axillary verticels, the leaves subtending the upper flower heads often much reduced; sepals 4, ovate-lanceolate, acute, ciliate, 2 mm. long; corolla white, 4–6 mm. long, villous above the base; capsule glabrous or pilosulous, 3 mm. long; seeds punctulate, purple-black.

Borreria ocimoides (Burm.) DC. Prodr. 4: 544. 1830. *Spermacoce ocimoides* Burm. Fl. Ind. 34. *pl. 13, f. 1.* 1768. *B. parviflora* Mey. Prim. Fl. Esseq. 83. *pl. 1.* 1818.

Río Manimo to Tucipeta, *Bond, Gillin & Brown 176* (W). Dividive, Trujillo, *Pittier 11008* (W). Without locality, *Fendler 2004* (K, M). Sacupana, *Rusby & Squires 73* (M, W), *315* (M, W). Colonia Tovar, *Fendler 598* (K), *599* (M). La Rubiera, near Calabozo, Guárico, *Grisol 21* (W, Y). Maracay, Aragua, *Cornelio 143* (W). Widely distributed in tropical America, Asia, and Africa.

A slender, often much-branched annual, erect or procumbent, the stems glabrous or puberulent on the angles; leaves green, oval to oblong-lanceolate, 1–3 cm. long, glabrous; flowers minute, white, in dense axillary verticels; sepals 4; stamens included; fruit glabrous or puberulent.

This is one of the most common and widely distributed of the weedy species of American Rubiaceae. It occurs chiefly in the moister lowlands.

Borreria pygmaea Spruce ex Schum. in Mart. Fl. Bras. 6^6: 58. 1888.

Type collected on the Orinoco near Maipures, *Spruce 3598* (photo. in F). Sabana de Atures, among granitic rocks, *Gaillard 104* (P). Cerro Mogote, on the Orinoco, *Chaffanjon 106* (P).

A slender dwarf annual, simple or sparsely branched, commonly less than 10 cm. high, the stems acutely angled, aculeolate on the angles, glabrous; leaves narrowly linear or linear-lanceolate, 3–6 mm. long, acutish, glabrous; inflorescences capitate, 1–5-flowered, subtended by 2–4 leaves; sepals 4, equal, oblong, aculeolate-ciliolate, 0.6–0.8 mm. long; corolla 2 mm. long; capsule 1.5 mm. long, villosulous at the apex.

Gaillard records the vernacular name as "limón de piedra."

Borreria suaveolens Mey. Prim. Fl. Esseq. 81. *pl. 1.* 1818. *Spermacoce tenella* HBK. Nov. Gen. & Sp. 3: 345. 1819. *B. tenella* C. & S. Linnaea 3: 317. 1828. *S. orinocensis* Willd. ex R. & S. Syst. Veg. 3: 531. 1818.

Mene Grande, Zulia, *Pittier 10556* (W, Y). Lower Catuche Wood, above Caracas, 1,000–1,200 m., *Pittier 7017* (W). La Cortada, Miranda, *Pittier 11230* (P, W, Y). Silla de Caracas, *Kuntze 1627* (W). Middle Cotiza, near Caracas, in savannas, 1,000–1,400 m., *Pittier 7197* (W). Without locality, in 1859, *Cruger* (S). Páramo La Trampa, Mérida, 2,100 m., *Jahn 991* (W). Páramo Mucuchíes, Mérida, 3,150 m., *de Bellard 48* (W). Without locality, May, 1874, *Kuntze* (Y). Near Colonia Tovar, 2,040 m., *Fendler 608* (G). Llano de la Puerta, Aragua, *Woronow 7352* (L). Near Caracas, *Woronow 7241* (L). Sabanas de Cujicito, 400 m., *Saer 560* (F). Tabay, 1,900 m., *Gehriger 535* (F). Cerro Mogote, on the Orinoco, *Chaffanjon 110* (P). Widely distributed in tropical America.

A perennial herb, erect, sometimes suffrutescent, glabrous or nearly so, bright green; leaves linear or lanceolate, rarely broader; flowers in very dense and many-flowered, globose, chiefly terminal heads; calyx lobes 4, triangular-oblong; corolla white or pink, 2.5–5 mm. long; anthers exserted.

A probable synonym of this species is *Spermacoce aturensis* HBK. Nov. Gen. & Sp. 3: 345. 1819. The type was collected on the Orinoco near Atures by Humboldt and Bonpland.

Borreria verticillata (L.) Mey. Prim. Fl. Esseq. 83. 1818. *Spermacoce verticillata* L. Sp. Pl. 102. 1753. *B. podocephala* DC. Prodr. 4: 542. 1830.

Petare, near Caracas, 800 m., *Pittier 9271* (Y). Without locality, *Fendler 602* (M). Cristóbal Colón, *Broadway 71* (W). Los Chorros de Tomalé, 800–1,000 m., *Pittier 7041* (W). Sierra Nevada de Mérida, *de Bellard 224* (W). Ciudad Bolívar, 35 m., sandy soil, *Holt & Gehriger 126* (F). Without locality, *Geay 34* (P). Widely distributed in tropical America.

Perennial, erect, rather stiff, herbaceous or suffrutescent, green, glabrous or nearly so; leaves subsessile, linear or linear-lanceolate; flowers in dense and many-flowered, terminal and axillary, globose heads; calyx lobes 2, linear; corolla white, about 2 mm. long.

80. RELBUNIUM Hook. f.

Relbunium glaberrimum Standl. Field Mus. Bot. 4: 297. 1929.

Exposed dry ridges, Cerro de Turumiquire, 1,800 m., *Tate 310* (W, type); 2,925 m., *Tate 238* (W).

Glabrous throughout; leaves quaternate, sessile, oval or ovate-elliptic, 5–8 mm. long, obtuse or short-acuminate, rounded or obtuse at the base, 1-nerved; pedicels axillary, solitary, equaling or shorter than the leaves; flowers involucrate, the 4 bracts 1.5–3 mm. long; ovary glabrous.

Relbunium hypocarpium (L.) Hemsl. Biol. Centr. Amer. Bot. 2: 63. 1881. *Vaillantia hypocarpia* L. Syst. Nat. ed. 10. 1307. 1759.

Rubia incana HBK. Nov. Gen. & Sp. 3: 338. 1819. *Relbunium hypocarpium* var. *incanum* Schum. in Mart. Fl. Bras. 6[6]: 113. 1888.

Cerro de Galipán, 1,500 m., *Eggers 13215* (W). Near Caracas, *Fendler 538* (M, Y). Upper Cotiza, near Caracas, 1,400 m., *Pittier 7565* (W). Páramo de los Leones, Mérida, 3,500 m., *Gehriger 137* (F). Without locality, *Mocquerys 1071* (P). Widely distributed in the mountains of tropical America.

A slender much-branched perennial herb with brittle stems, often subscandent; stems pilose or retrorse-pilose, sometimes glabrate; leaves elliptic to ovate or oval, rounded to acute at the apex, sessile, thick, commonly pilose or hispidulous on both surfaces; flowers whitish or greenish yellow; fruit orange-red, juicy, pilose.

Called "raicita" in Venezuela. The names reported from Brazil are "cipo do sapo," "ruivinia," and "ruivinha."

Relbunium orinocense (HBK.) Schum. in Mart. Fl. Bras. 6[6]: 112. 1888. *Rubia orinocensis* HBK. Nov. Gen. & Sp. 3: 339. 1819. *Rubia triflora* Willd. et *Galium pauciflorum* Willd. ex Schum. loc. cit.

Type collected on the banks of the Orinoco, *Humboldt & Bonpland* (photo. in F). A collection cited by Knuth (Init. Fl. Venez. 680. 1928) under this species is *R. hypocarpium.*

Stems pilose with appressed retrorse hairs, becoming scabrous; leaves oblong, acute, short-petiolate, ciliate, pilose, rigid; flowers axillary, solitary; ovary pilose; corolla lobes pilose outside, the stigmas pilose.

According to Schumann, in this species the stigma is pilose, while in *R. hypocarpium* it is glabrous or papillose. I suspect that *R. orinocense* is a synonym of *R. hypocarpium.*

81. GALIUM L.

Galium canescens HBK. Nov. Gen. & Sp. 3: 336. 1819.

Near Colonia Tovar, 1,950 m., *Fendler 537* (G, M, Y). Páramo del Morro, Mérida, 2,700 m., *Jahn 1060* (W). Páramo de Mucuchíes, 2,800 m., *Jahn 802* (G, W). Mucurubá, 2,500 m., *Gehriger 200* (F). Colombia to Peru, in the higher mountains.

Stems pilose above; leaves quaternate, ovate, short-acuminate, 3-nerved, pilose; flowers axillary and solitary or in 3's at the ends of the branches; corolla yellow; fruit dry, uncinate-hispid.

Galium caripense HBK. Nov. Gen. & Sp. 3: 337. 1819.

Type collected in shady places near Caripe, 900 m., *Humboldt & Bonpland* (photo. in F). Near Colonia Tovar, 1,800 m., *Fendler 539* (G, M, Y). Avila savannas near Caracas, *Pittier 9522* (W).

Stems retrorse-aculeolate; leaves in 8's or 6's, oblong-lanceolate, mucronate, retrorse-aculeolate on the margin; flowers terminal, subternate; corolla white; fruit uncinate-hispid.

Pittier 9522 is listed by Knuth (Init. Fl. Venez. 680. 1928) as *Galium pseudoaparine* Griseb.

Galium obovatum HBK. Nov. Gen. & Sp. 336. *pl. 277.* 1819.

Mountains above Caracas, 1,600 m., *Jahn* (W). Los Venados, Distrito Federal, 1,600 m., *Pittier 10451* (W, Y). Upper belt of Pico de Naiguatá, Miranda, 2,400–2,700 m., *Pittier 6267* (W). Silla de Caracas, 2,000–2,600 m., *Pittier 8354* (W). Galipán, 1,700 m., in forest, *Preuss 1916* (B). Also in Colombia and Ecuador.

Stems reflexed-pilose or glabrate; leaves quaternate, obovate, rounded and apiculate at the apex, sparsely pilose or glabrate, 3-nerved; flowers usually in 3's, pedicellate, white; fruit dry, uncinate-hispid.

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